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ABSTRACT

Formal action by state education agencies (SEA's) in regard to educational technology is quite recent. In 1981 only seven states addressed the issue in formal state-level action. This paper presents the results of a 1983 survey on state-level initiatives relating to educational technology. The survey found that nearly all state SEA's are involved in educational technology. These primary roles for the computer were identified by the SEA's responding to the survey: as an instructional aid, as a management tool, and as a subject area. There is a wide variety of responses, with each state taking somewhat different approaches. There is much duplication, and states would benefit from sharing their experiences. Nearly all SEA's have chosen to function as facilitators providing information, resources, training, guidelines, and/or policy support. Very few states conduct research and few develop courseware. Included with the survey are individual summaries of each state's and territory's current stances on educational technology as well as a number of tables outlining state positions on specific issues and programs. (MD)

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SCHOOLING & TECHNOLOGY

VOLUME 1

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State-level Policy Initiatives

EA 016 135

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The Southeastern Regional Council for Educational Improvement is a nonprofit, interstate organization created and governed by the Chief State School Officers of 12 southeastern states. A major function of the Southeastern Regional Council is to assist member State Departments of Education to study educational policy issues within the social, political, and economic context of the region and to design alternatives for policy action.

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SCHOOLING AND TECHNOLOGY

Volume 1: State-level Policy Initiatives

July 1983

Southeastern Regional Council for Educational Improvement

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FOREWORD

Early in 1983, the Southeastern Regional Council for Educational Improvement conducted a survey of state education agencies to gather information concerning state policies relating to the use of technology in public education.* The original intent of the survey was a narrow one: to identify specific policies enacted by legislatures or state boards of education. Upon receipt of the responses, however, it became apparent that much valuable information would be omitted if the initial focus were not broadened. For the survey revealed that, throughout the nation, state education agencies are engaged in a wide variety of activities related to the use of educational technology – activities initiated not only by legislative and board policy, but by chief state school officers, advisory committee recommendations, regulations, and other sources.

Thus, based on the responses, the scope of the survey report was expanded significantly. It now includes not only a listing of those states with laws and board policies related to educational technology, but provides a broad picture of the kinds of policies and activities found throughout the country. This summary report is compiled, however, with an important caveat: Because the initial survey did not specifically request – category by category – the information received from the responding states, it is likely that some states may be engaged in activities which they did not report. (We suspect, for example, but do not have data to confirm, that many more states than noted here are using computer technology to handle statewide accounting, budgeting, and data collection.) Therefore, the survey results are reported in summary fashion – as a representative sample of the variety of activities and the increasing leadership role of the state education agencies in using educational technology – rather than as a "complete" list of all related activities.

Although the scope of the survey was broadened in one respect, in another it has remained constant. The survey's focus is policy – and initiatives reflective of state-level policy. Therefore, no attempt has been made to catalogue the number of computers in use in local school districts, the number of teachers trained to provide computer instruction, the number of video recorders, or other such data.

Finally, we would like to offer a note about terminology. The term "educational technology" is used here specifically to mean the recent electronic technologies which have emerged with the invention of the transistor and micro-chip. Obviously, the use of slide rules, television, or filmstrips – also educational technologies – predates the activities described in this survey, and such instructional tools are *not* included in the term "educational technology," as it is used here.

In that sense, the term is used narrowly. In another, "educational technology" is a broad term referring to a variety of electronic systems including cable television, radio, satellite communications, mainframe and microcomputers, audio conferencing, teleconferencing, interactive video, electronic networking, and other emerging state-of-the-art equipment.

For the purposes of this report, the District of Columbia will be referred to as a state. The territories, including Puerto Rico, will be referred to separately. Finally, every effort was made to avoid acronyms in the first section of the report, with two exceptions: state education agencies are referred to as "SEAs," local education agencies as "LEAs." In Part II, the individual state summaries make frequent references to acronyms for various state and national programs. Where possible, these have been identified more fully.

**Surveys (see Appendix) were sent to the state education agencies of the 50 states, the District of Columbia, and the territories. Only Hawaii and New Mexico have not responded.*

PREFACE

With the computer named "man of the year," the numbers of home-owned computers growing daily, and space-age technologies invading every aspect of American life, it seemed appropriate to the Southeastern Regional Council to examine the impact that the new technology is having on public school policy. The results of that examination – a survey of state-level initiatives on educational technology – are reported here.

Two years ago, *Electronic Learning* magazine conducted a similar survey, with similar intent – specifically focusing on policies and programs related to computer literacy.* The results of the survey were published in the fall of 1981. Overall, the picture painted was one of very little activity. Interest in technology was growing, but limited. Virtually no states had enacted mandates related to computer literacy (Florida was the one exception; two other states had proposed mandates). The sprinkling of activity was primarily at the local level; most state-level activities were related to needs assessment and surveys of computer use in the local school districts.

The picture – reflected in the results of the Southeastern Regional Council's 1983 survey – has changed dramatically. Nearly all state education agencies are engaged in some formal activity related to the use of educational technology. Fourteen states have passed legislation; 23 have statewide offices or divisions for computer technology; over half have state-level task forces, committees, commissions, or position papers; and virtually all of those responding are engaged in technical assistance activities – ranging from clearinghouses and approval programs for computer hardware and software to training programs for educational personnel. A number of states have mandates requiring the availability of computer literacy courses, and some require computer literacy of their students and teachers.

The results of the survey are reported in two parts. Part I offers a general picture of technology-related activity in state education agencies throughout the country. Although an effort has been made to summarize the kinds of policies and the scope of various kinds of activities related to technology, we recognize that – given the rapid pace of technological growth – the picture will have changed in the short period of time it has taken to compile the data and publish the report. Thus, the summary is intended to offer a respresentative portrait of state educational technology initiatives, rather than an exhaustive listing.

Part II provides individual summaries of activities ongoing in each of the states. These vary in length and thoroughness – as did the responses from the SEAs.

Schooling and Technology: State-level Policy Initiatives is the first of two Southeastern Regional Council publications on education and technology. It offers a review of the current picture of educational policy in the technological revolution. From the survey results, it is hoped that educators may not only gain awareness of the kind and scope of activities being pursued in other states and share the learning and experiences of others, but may begin to identify the kinds of issues and problems to be resolved in the future. This report, therefore, serves as the foundation for Volume 2 – which reviews many of the critical policy issues and options related to technology.

**The results of a survey on "How State Governments are Promoting Computer Literacy" were published in the November-December 1981 issue of* Electronic Learning. *The survey – conducted by mail and phone of all 50 state education agencies – was concluded in September, 1981.*

Technology and Education — A Short History

The formal relationship between state education agencies (SEAs) and educational technology is quite recent. With the exception of seven states, the technology initiatives of SEAs, state legislatures, task forces, and commissions are products of the 1980s — most of them since 1982.

The pioneers were Delaware, Minnesota, North Dakota, Alaska, Florida, North Carolina and Ohio. As early as 1966, Delaware used Title III funds to support an "Education Technology" project and established a consortium of school districts — the "Data Information Center for Education" — in 1971 and its first "State Plan for the Use of Computers in Education" in 1976.

In 1973, the Minnesota Legislature created and funded the Council on Quality Education Projects — including the Minnesota Educational Computing Consortium (MECC). MECC not only assists Minnesota schools and colleges but provides membership services to a number of other states.

Interest in instructional technology is of long standing in North Dakota, with studies begun as early as 1967. In 1975, the state legislature passed a resolution to study the possibility of a statewide computer system and schools began that year to participate in the Computer Loan System.

Alaska's 1977 legislation supported a multi-year project called "Educational Telecommunications for Alaska." ETA covers a broad range of state needs, from a satellite-fed television network for lifelong learning, to a microcomputer-based method of instruction, to electronic mail.

In 1977, Florida's SEA formed the Florida Educational Computing Project (FECP) "to provide technical services in the administration and technical use of computers." Two years later, North Carolina established a task force on educational technology and Ohio enacted legislation creating and funding a statewide network — the Ohio Computer Education Network.

The variety of initiatives taken by those first seven states is reflected in the activities now ongoing in virtually every state in the nation. (Responses were not received from Hawaii and New Mexico.) Descriptions of activities received from 48 of the 50 states, the District of Columbia, and the territories cover a wide range: from states which continue to take a "wait and see attitude" to states where policies and programs are mandated by legislation. The origins of such activities are equally varied. In some states, they stem from study groups' recommendations; in others, from state board of education policies, executive orders, or legislative action.

However, the degree of activity within a state cannot be equated with the source of policy on technology. A few examples illustrate this point:

- Prior to the passage of legislation in March, 1983, Arkansas had established a microcomputer laboratory to provide teachers and administrators a resource center for reviewing and evaluating computer hardware and software.

A SUMMARY OF STATE INITIATIVES RELATED TO EDUCATIONAL TECHNOLOGY

STATE	LEGISLATION	STATE BOARD POLICIES	OTHER
Alabama	–	–	Review lab; established Education Technology Unit; State plan for microcomputers, 6/83
Alaska	*1977, 1981*	–	–
Arizona	–	Policy statement	–
Arkansas	*3/83*	–	–
California	Effective 1/83	–	–
Colorado	–	*Pending*	*Position paper*
Connecticut	4/81	Policy adopted, 11/81	–
Delaware	–	*Plan, 10/82*	*Project*
District of Columbia	–	5-year plan, 3/83	–
Florida	*1971, 1981*	*Set SEA divisions, 1981*	*SEA initiatives*
Georgia	1983	–	Governor to appoint Commission
Hawaii	*No response*	*No response*	*No response*
Idaho	–	Commission report, 1983	–
Illinois	*Proposed*	*Established consortia, 3/83*	–
Indiana	4/83	Accepted Task Group recom, 1983	–
Iowa	–	–	*Governor's Task Force*
Kansas	–	–	SEA Initiative
Kentucky	–	*Pending, Task Force*	–
Louisiana	Pending	Pending, Task Force	–
Maine	–	–	*Consultant*
Maryland	1969	Pending	Task Force
Massachusetts	–	*Task Force report, 1982*	*Plan*
Michigan	–	Pending	Position statement
Minnesota	*1973, 1981*	–	–
Mississippi	–	–	Plans
Missouri	–	–	*Committee*
Montana	–	Proposal accepted, 1982	Task Force, 5/82
Nebraska	–	–	–
Nevada	–	–	Micro Computer center
New Hampshire	–	–	*Non-SEA groups*
New Jersey	Pending	–	Governor's Commission
New Mexico	*No response*	*No response*	*No response*
New York	1982	–	Center
North Carolina	*Proposed*	*Task Force*	*Plan; Division*
North Dakota	–	–	Guide; MECC membership
Ohio	*1979, 1980*	*Committee*	*Network*
Oklahoma	–	–	Established SEA sections
Oregon	–	*Priority objective*	*Consortium*
Pennsylvania	7/82	Pending	Network; course
Rhode Island	–	*Proposed*	*Governor's initiative pending*
South Carolina	1981	–	Plan
South Dakota	–	*Established certification requirements; McRel membership*	–
Tennessee	–	Policy statement	Committee; handbook
Texas	*Proposed*	*Endorsed recommendations*	*Task Force*
Utah	–	Position paper	–
Vermont	–	–	*VECTOR network; teacher certification guidelines*
Virginia	1983	Pending	Division
Washington	–	*Pending*	*Task Force*
West Virginia	–	–	Workshops
Wisconsin	–	–	*SEA Initiatives*
Wyoming	–	–	SEA staff training
Territories:			
American Samoa (Tutuila)	–	–	Developed high school program

Commonwealth of Northern Marianas, Guam, Puerto Rico, Trust Territories, Virgin Islands – No action

and the SEA had developed a bibliography related to computer technology. The new legislation set up a commission on educational technology and it provides SEA funding and authorization for the teaching of basic skills using microcomputers.

- In contrast to Arkansas's more specific legislative requirements, Connecticut's 1981 legislation provides a broad and general mandate for the SEA to provide technical assistance. The law requires the SEA to "provide leadership and otherwise promote the improvement of education in the state, including research, planning and evaluation and services relating to the provision and use of instructional technology by school districts . . ."
- Although no legislation is involved, the District of Columbia's initiatives are among the most specific and far-reaching. A District task force, the "Computer Literacy Planning Group," developed a comprehensive five-year plan which was recently approved by the District's Board of Education. The plan calls for computer literacy requirements for student graduation and teacher certification and tenure, a Computer Training Laboratory, acquisition of computer hardware and software for all schools, and other activities related to educational technology.

Legislation

Fourteen states have enacted legislation related to educational technology. In five others, legislation has been proposed or is pending action. The state laws run the gamut from highly specific to broadly supportive of "computer literacy" and educational technology. Some were the source of SEA initiatives; some came after the fact, providing needed fiscal or other support to fully develop state education department initiatives.

Florida's 1981 legislation specifically outlines the role of the state education agency in bringing technology into the schools. It instructs the schools "to use computers and related technology to make instruction and learning more effective and efficient and to make educational programs more relevant to contemporary society." The SEA's role includes providing information and consultation, establishing purchasing agreements, determining the best use of available resources, and evaluating programs and equipment.

In South Carolina and Connecticut, the legislation provides a broad statement of policy. Connecticut's legislation includes educational technology among the "general educational interests of the state." South Carolina's law provides guidelines and support for using new technologies in all state agencies, including education.

Both one of the earliest laws — passed in Minnesota in 1973 — and one of the most recent — Indiana's 1983 law — set up computing consortia. Legislation in California, Ohio, and Pennsylvania addresses specific areas in which technology is to be implemented. New York's two laws related to technology are directed to higher education.

STATE LEGISLATION RELATED TO EDUCATIONAL TECHNOLOGY

Alaska	1977,1981 — Established an Office of Technology and Communications
Arkansas	1983 — to fund and implement the teaching of basic skills using microcomputers
California	Effective 1983 — established SEA Committee on Educational Technology and defines role of chief state school officer
Connecticut	1981 — defines SEA role with respect to educational technology
Florida	1977, 1981 — Established Florida Education Computing Project; mandated state policy on educational computing; established Educational Technology Section (ETS)
Georgia	1983 — appropriations to implement high technology
Indiana	1983 — establishes State Consortium and SEA guidelines; and creates state tax credit for companies donating computers to schools
Maryland	1969 — establishes state educational television system
Minnesota	1973 — created Council on Quality Education (including technology initiatives) and established the Minnesota Educational Computing Consortium (MECC) 1981 — funded alternative educational delivery system grants
New York	1982 — established centers for advanced technology study, higher education
Ohio	1979 — established computer network
Pennsylvania	1982 — established advanced technology centers at colleges
South Carolina	1981 — made State Information Management Office responsible for all agencies' needs and use of technology
Virginia	1983 — funding for inservice training; hardware/software review; hardware/software acquisition; committee to study initiatives to advance instructional computing; and tax credits for donations of educationally appropriate hardware.

Legislation related to educational technology is pending action in New Jersey and Louisiana. The New Jersey law would permit LEA adoption of computer literacy courses. Louisiana's pending legislation would provide tax credits for businesses supporting educational technology. Illinois and North Carolina have also proposed legislation related to educational technology.

Task Force and Committee Recommendations — The Non-Legislative Route

Legislation is but one avenue pursued by state-level policy makers. In well over half the states, technology related activities are either recommended or already in place — through initiatives other than legislation. Twenty-three states have established statewide committees, divisions, centers, or offices of technology (six as a result of legislation); 26 states have set up a task force, committee, or commission to conduct studies and/or make recommendations, or have developed SEA position papers or policies (two as a result of legislation).

The establishment of centers or study groups in most of these states is indicative both of the high level of interest in the new technologies and an acknowledged need for careful planning at the state level. The resulting recommendations vary widely — not only in terms of content and specificity, but in terms of impact. Many, for example, are general, urging the SEA to prepare and distribute information on computers and their use, to assist LEAs in evaluating courseware, and to provide technical assistance and training for LEA personnel.

Other recommendations are more specific. Texas's task force called for the state board of education to "review teacher certification requirements to assure computer literacy," for example. In a similar recommendation, the District of Columbia's task force urged that "computer literacy and software selection skills" be required for all instructional personnel as part of the five-year recertification requirement. While the District of Columbia's plan was adopted by the Board on March 16, 1983, the recommendations of Texas's legislative committee still await legislative action.

Of Central Concern — The Computer

Although some states — notably Alaska and Florida — have addressed the issue of educational technology in its broadest sense (electronic systems including cable television, radio, satellite communications, mainframe and microcomputers, audio conferencing, teleconferencing, interactive video, electronic networking, and other emerging state-of-the-art equipment), for the most part, SEA initiatives and statewide activities are primarily concerned with microcomputers.

SEAs report a number of pressures exerted both from within and outside the education community, which have placed emphasis on the computer and have created the importance of an SEA leadership role in most states.

Chief among these are the rapidly increasing accessibility of microcomputers — in homes, offices, and schools — and the simultaneously decreasing cost. Most state act-

STATES WITH SEA DIVISIONS OR UNITS FOR COMPUTERS/TECHNOLOGY

* = recommended
† = existing administrative unit assigned responsibility for technology

ALABAMA
Educational Computer Technology Unit
ALASKA
Office of Educational Technology and Telecommunications
CALIFORNIA
Educational Technology Committee
†COLORADO
Administrative Support Services
CONNECTICUT
Learning Resources and Technology Unit
DISTRICT OF COLUMBIA
Computer Literacy Training Laboratory
FLORIDA
Electronic Technology [and 5 other] Section(s)
MASSACHUSETTS
Bureau of Educational Resources
*MICHIGAN
Assistant Superintendent for Technology
MINNESOTA
Minnesota Educational Computing Consortium
†MISSOURI
Management Information Services
NEVADA
Microcomputer Resource Center
†NEW JERSEY
General Education, K-12 Division
NORTH CAROLINA
Educational Media and Technology Services Division
*NORTH DAKOTA
Committee on Computer Technology
OHIO
Ohio Committee for Educational Information Systems
OKLAHOMA
Two sections have related responsibilities: Instructional Computer Resources and Word Processing
†OREGON
Office of Policy and Program Development
TENNESSEE
SEA Computer Coordinating Committee
TEXAS
Education Agency Committee on Computers in Instruction
VIRGINIA
Division of Instructional Media and Technology
WASHINGTON
Task Force for Computer Technology and Curriculum
WISCONSIN
Bureau of Instructional Media and Technology

STATES WITH ADVISORY TASK FORCES COMMITTEES, OR COMMISSIONS

* = suggested or pending
† = legislation

†ARKANSAS
Commission on Improving Public Schools Basic Skills Opportunities Through Technology

COLORADO
Two Advisory Groups, Position Paper for SBE

†CONNECTICUT
Act re: SEA policies

DELAWARE
State Plan for Computer Utilization in Education, f/y 84

DISTRICT OF COLUMBIA
Computer Literacy Planning Group

IDAHO
Commission on Excellence (all agencies)

ILLINOIS
State Board of Education Planning and Policy Committee

INDIANA
Superintendent's Advisory Task Group for Computer Experience in Elementary and Secondary Schools

IOWA
[Governor's] High Technology Task Force (all agencies)

KANSAS
Ad Hoc Microcomputer Committee

KENTUCKY
Microcomputer Task Force

*LOUISIANA
Task Force on Computer Literacy

MARYLAND
State Task Force on Technologies

MASSACHUSETTS
Division of Curriculum and Instruction Task Force on Instructional Technoloy

MICHIGAN
Michigan Project BEST committee (position statement pending)

MISSOURI
Instructional Technology/Microcomputer Committee

MONTANA
Montana Task Force on Computer Education

NEW JERSEY
[Governor's] Commission on Science and Technology (all agencies)

PENNSYLVANIA
Ben Franklin Partnership Fund Board

*RHODE ISLAND
[Governor's] Technology in Education initiative (pending)

SOUTH CAROLINA
Computer Literacy Committee

TENNESSEE
Statewide Microcomputer Advisory Committee

TEXAS
Task Force on Essential Computer Competencies for Education

UTAH
Position paper, Use of Microcomputer in the Education Process

WASHINGTON
Task Force for Computer Technology in Curriculum

WISCONSIN
Committee on Computers in Education

ivities reflect strong grass roots support for computer literacy and for the use of computer technology in the schools. Most education authorities acknowledge that microcomputers permit them to attack instructional problems in new and effective ways, with new applications being developed daily. Fiscal constraint has created dual pressures: until recently the acquisition of costly equipment has been difficult and slow; yet the present cost-effectiveness of the microcomputers makes their use highly desirable. Finally, recent national study group reports criticizing the quality of American public education have added impetus to the public's support of computer and technical education.

As LEAs – anxious to join the computer revolution – face problems of limited resources, uneven quality of instructional software, rapidly changing technology, and few or no trained staff, the need for state-level support becomes more and more obvious. Thus, the issue facing SEAs – and reflected in the many initiatives taken in the last several years – is not whether educators should use the computer, but how to do so effectively and efficiently.

Based on the responses to the survey, the primary role for the SEAs in support of computer use in the schools is related to equipment. While the degree of involvement varies, virtually all the SEAs reported some activity in this area. At one end of the spectrum, some state agencies develop computer courseware or approve equipment and software for local district use. Other SEAs may recommend hardware or courseware or simply provide LEAs with reviews and evaluations of available equipment. Many publish bibliographies on computer materials and their use. States also display a range of policies related to equipment purchase. Some provide matching funds to LEAs for computers; other states may facilitate group purchasing programs or may approve equipment.

MULTIPLE ROLES FOR COMPUTERS

Three primary roles for the computer were identified by the SEAs responding to the survey:

- An aid to instruction,
- A management tool,
- A separate subject area in which students are introduced to the computer and learn how it works.

The foremost application of computers, according to the respondents, is for instruction – in a variety of ways and subject areas. These instructional uses include: computer-assisted instruction (CAI), including basic skills, competencies, tutorial programs, and drill and practice; computer-managed instruction; simulations; and especially versatile use for both remedial and gifted and talented student programs.

As a management tool, SEAs report that computers are being used both in the classroom and by administrators. Classroom applications include: diagnosis, test construction and scoring, computer-generated student profiles, special education information, and teacher clerical

CERTIFICATION STANDARDS FOR TEACHERS OF COMPUTER COURSES

* = recommended or pending

*Arizona	State Board is considering establishing computer literacy requirements for teacher certification.
*Colorado	State Board position paper suggests making "recommendations for components of educational technology degree requirements and general teacher education programs."
Delaware	State Board policy – state plan includes developing certification requirements for teachers of computer courses.
District of Columbia	District Board policy – "that computer literacy and software education skills be required for all instructional personnel" as part of five-year recertification requirement; and "beginning with school year 1983-84, all new teachers would have to demonstrate computer literacy before being granted permanent tenure."
*Florida	SEA is developing teacher certification requirements for computer education courses.
Indiana	State Board approved SEA endorsement of "minimum proficiencies for computer instruction."
Kansas	SEA to develop a draft of a certification/accreditation plan that identifies skills needed for teachers to effectively use computers in the classroom.
*Louisiana	Task Force appointed by the Chief State School Officer recommends the integration of computer education in teacher education courses, including standards for computer education.
North Carolina	SEA plan recommends teacher training institutions develop and implement a plan to insure all future teachers, administrators, and other educators are computer literate; and to provide opportunities to acquire needed skills to use computers as instructional and management tools.
*North Dakota	SEA recommendation – A teacher of math, science, or business education may teach computer courses, and he/she "should have at least a minor in his/her department, plus one course or workshop in computer programming."
South Dakota	State Board policy – inclusion in the administrative rules, effective 7/1/83, that "a teacher instructing a course in computer programming or hardware lasting nine weeks or longer shall have a minimum of 8 semester hours in computer-related courses, including at least 4 semester hours in programming language and 2 semester hours in fundamentals of computer systems."
*Tennessee	SEA proposes a teacher training plan for teachers of grades 7 and 8.
*Texas	Legislative committee recommends with State Board approval that the Board should review teacher certification requirements to assure computer literacy.
Utah	State Board to define certification requirements for the various disciplines to be affected by the use of microcomputers.
Vermont	SEA has issued certification guidelines specifying computer skills in ten subject areas.
Washington	Chief state school officer recommends retraining teachers and requiring computer literacy competency for new teachers.

tasks. Administrative uses in SEAs and LEAs include: student accounting (scheduling, attendance, grade reporting, and other record keeping); fiscal accounting; business use (electronic mail, inventory, etc.); and word processing – activities which support the development and operation of uniform and compatible computerized management systems.

COMPUTER LITERACY: DEFINING A NEW BASIC SKILL

The third major application of computers is loosely defined as "computer literacy." The survey revealed that one of the greatest issues facing the SEAs is arriving at a clear definition of that ambiguous term. Nearly all of the activities reported reflected the broad – if vague – commitment to preparing youngsters to live in a computer age. Tennessee's State Board of Education established the goal that all children in the public schools learn basic computer skills before entering high school. Minnesota, one of the first states to establish a computer education center and with one of the nation's most comprehensive computer education programs, says simply – in its most recent State Board recommendation – that the "state's schools will promote computer literacy through various of the disciplines."

Though few states define computer literacy in specific terms, many include such components as: awareness, programming, computer languages, applications or use of skills, accessing and sometimes writing programs, word processing, and data processing.

Twenty-three states either recommend or require the availability of computer courses for students. Only Tennessee and the District of Columbia reported requiring some form of "computer literacy" for students. At least one

STATES RECOMMENDING OR REQUIRING COMPUTER COURSES FOR STUDENTS

* = recommended

Alaska	1981 – SEA offers computer science, computer literacy, and computer awareness courses.
*Arizona	State Board of Education to consider allowing one semester of computer awareness for one of the four required semesters of mathematics
Arkansas	Legislation, 3/83 – "to provide for the implementation of computer-based educational projects in the public schools."
*Colorado	SEA advisory committee (12/82) to assist in developing technology curricula.
Connecticut	Legislation, 4/81 – SEA will "prepare such courses of study and publish such curriculum guides" and provide instructional technology resources.
Delaware	State Board of Education action, 11/82 – to "provide opportunity for all students to acquire computer literacy skills before high school graduation."
District of Columbia	District Board of Education action, 9/82 – to offer computer literacy courses in grades 1-8, and to require a command of computer literacy skills before completion of grade 9, beginning no later than school year 87-88.
*Florida	SEA recommendation, 9/82 – requiring that teachers and students be computer literate and that teacher certification tests and student assessment tests be revised to accommodate this requirement.
Idaho	State Board of Education action, 8/82 – allows two of four required math credits for high school graduation to be computer/calculator courses.
Illinois	State Board of Education action, 3/83 – recommends state $ support "to promote computer literacy for students in all grade levels."
Indiana	State Board action, 1/83, endorses LEA flexibility in teaching computer literacy/awareness and endorses offering computer education courses in elementary and secondary schools.
Iowa	Governor's Task Force, 11/82 – recommends placing greater emphasis on prerequisite courses, including computer literacy, for high technology instructional programs, grades K-12, and creation of new instructional programs at high school level to prepare students for new occupations.
Kentucky	State Board action, 1982 – approved elective computer courses for high schools.
*Louisiana	Task Force recommendation, 10/82 – that computer literacy be an integrated part of the K-12 curriculum, and that all students should be computer literate with the completion of the 8th grade.
Minnesota	State Board of Education action, 1/83 – makes minimum program recommendation that "schools will promote computer literacy through various of the disciplines."
Montana	State Board of Education action, 1982 – directs all schools to be able to provide students with education in: effect of computer knowledge on future job market, hands-on experience with computers, and knowledge in computer literacy.
North Carolina	SEA action, 1/83 – recommends that LEAs "provide an integrated sequence of studies which incorporate computer awareness (K-5), computer exploration (6-9), and computer specialization (10-12), as students progress toward computer literacy."
North Dakota	SEA action, 1979 – recommends introductory computer programs be offered for grades 10-12, and an advanced course offered for grades 11-12, with 1 semester = ½ credit. 9-weeks short course = ¼ credit.
Pennsylvania	SEA action, 1982 – provides a 15-lesson computer literacy course for students.
Tennessee	State Board action, 1982 – states the goal that all children learn basic computer skills before entering high school.
*Texas	Legislative Committee, 1982 – recommends that the State Board encourage access to computer literacy for all children.
Utah	State Board action, 11/81 – incorporates appropriate uses of microcomputers into state curriculum development and defines need for a curriculum to develop computer literacy.
*Virginia	Recommendations awaiting State Board action – computer education for all students prior to high school graduation.

state — Indiana — endorses the availability of computer courses, but has specifically recommended that students *not* be required to complete it.

Sixteen states have or are considering some computer literacy requirements for teacher certification. These range from the District of Columbia's requirement of computer literacy for recertification for new teachers or for tenure, to South Dakota's regulation requiring that "a teacher instructing a course in computer programming or hardware lasting nine weeks or longer shall have a minimum of eight semester hours in computer-related courses, including at least four semester hours in programming language and two semester hours in fundamentals of computer systems."

SEA Initiatives — The State As Facilitator

With few exceptions, the role of the state education agency in the emerging computer age is that of facilitator rather than initiator. The nature of the SEA's guidelines, policies, and activities tends to be consistent with other activities and with local patterns and beliefs concerning state and local authority. Few states have stepped out of traditional patterns of providing technical assistance, curriculum development, and other guidance in dealing with the issues and problems related to educational technology.

Among SEA activities to address educational technology are:

TRAINING

Virtually all of the states reported some form of in-service training support for LEA staff. These activities ranged from periodic conferences to the support of district staff with tuition for computer courses. Many of the training activities relate directly to SEA programs and services. That is, local district educators are instructed in the use of the state's instructional television program, media center, or electronic mail capability. A few states have joined with the business community to provide training activities; others are working with institutions of higher education.

COOPERATION — SHARING — DISSEMINATION

Perhaps one of the most important SEA functions, based on the responses to the survey, is to facilitate the sharing of information and materials with LEAs. A number of states have established statewide or regional centers for educational technology; others, like Michigan and North Carolina, use existing regional centers to disseminate information and to share resources.

The new technologies have been used extensively in improving intrastate communications as well: electronic mail, electronic newsletters, video-conferencing, and audio-conferencing are mentioned as frequent applications of the technology for the SEAs.

A few states have also extended their cooperative activities beyond the eductation community to include business and industry. Iowa, in fact, assigns joint responsibility for technical education and computer literacy. In its Nov. 1982 report, the Governor's Task Force encouraged partnerships between business/industry and educational systems to strengthen the technical competence of Iowa's teachers and students and provide incentives for business/industry and educational institutions to share high technology equipment and facilities. Similarly, a New Jersey Executive Order, signed in July 1982, established a Commission on

STATES WITH SEA STAFF POSITIONS FOR COMPUTERS/TECHNOLOGY

* = recommended
† = existing administrative unit assigned responsibility for technology

ALABAMA
Consultants

ARIZONA
Coordinator of Computer in Educational Programs

ARKANSAS
Administrator of Instructional Computing

*DELAWARE
(2) Coordinators for Instructional/Administrative Computer Applications

FLORIDA
(6) Directors/Administrators (6 Divisions)

GEORGIA
Planning Coordinator for Educational Technology

MAINE
Microcomputer in Classrooms Consultant

MASSACHUSETTS
Coordinator of Instructional Technology

*MICHIGAN
Assistant Superintendent for Technology

†MINNESOTA
Supervisor of Curriculum

MISSOURI
Coordinator, Management Information Services

MONTANA
Computer Specialist

†NEVADA
Consultant, Special Education Programs

NORTH CAROLINA
Assistant State Superintendent, Educational Media and Technology Services (and others)

†OREGON
Director, Office of Policy and Program Development

PENNSYLVANIA
Technology Services Coordinator

TEXAS
Education Specialist for Instructional Technology

UTAH
Coordinator, Information Technology/Futuring

VERMONT
Computer Specialist

Science and Technology whose responsibilities include determining "the requirements of industry, labor, higher education, and government in undertaking a joint effort to encourage the development of a high technology economy." Connecticut's State Board of Education has adopted a policy promoting "cooperative efforts among educators, government, and business and industry in addressing the need for computer literacy."

GUIDELINES AND GUIDEBOOKS

At least 21 states have published some form of guidelines or guidebook to aid LEAs in using the new technologies – for educational or administrative purposes. These publications range from bibliographies and descriptions of available SEA services to comprehensive guidebooks on educational applications of computers and computer software.

STATEWIDE DATA COLLECTION/PROCESSING

Several states reported the use of the new technologies for collecting data – particularly data related to budget and enrollment – from LEAs throughout the state. Although this was not among the questions asked in the survey, it is likely that this is an important function in many of the states.

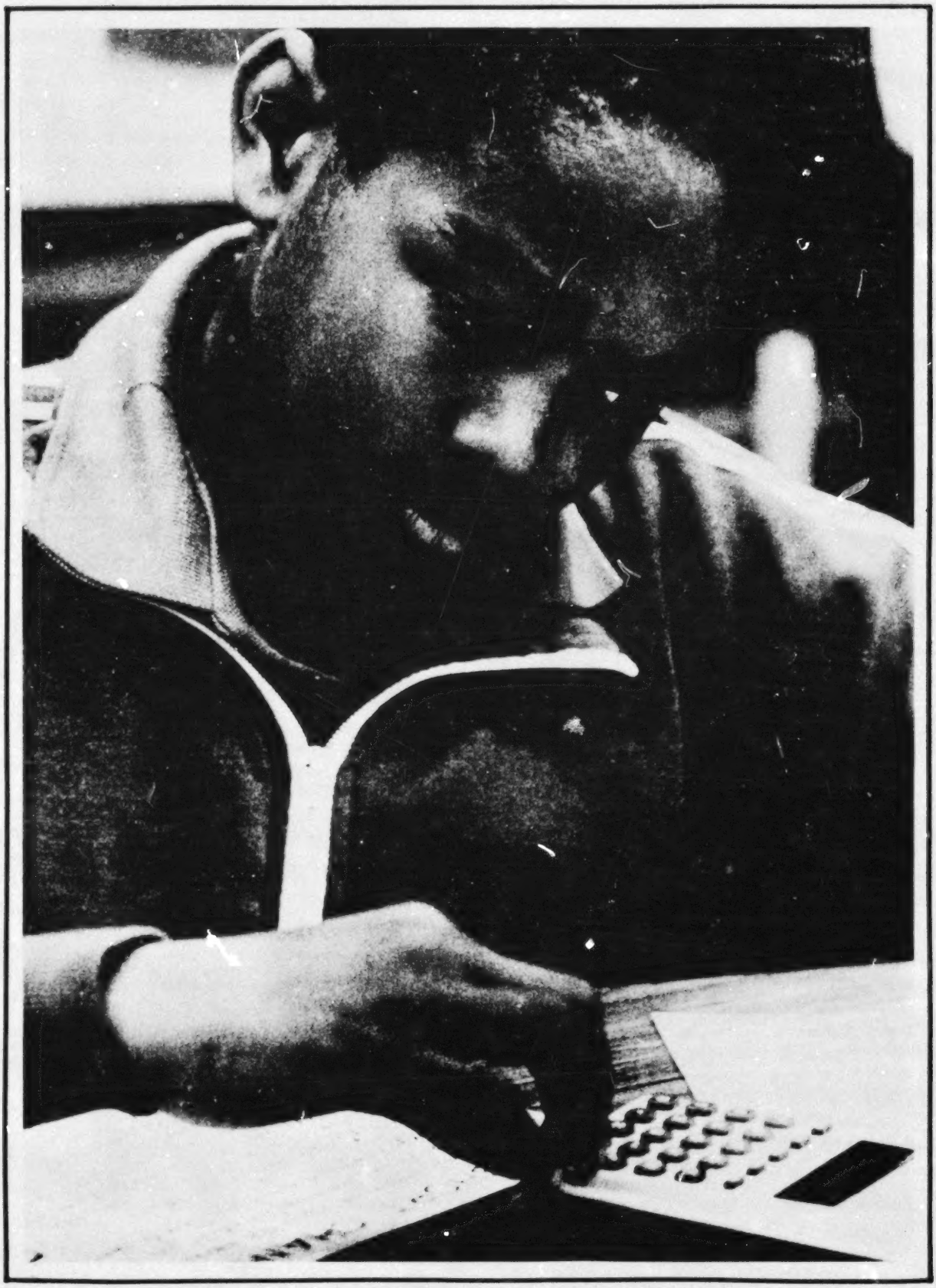
FUNDING

Another key support activity of the SEAs is simply to provide resources to local districts to enable them to use the new technologies. A number of states – such as Virgin-

SEAS PROVIDING GUIDES OR HANDBOOKS FOR LEAS

* = recommended

Alaska	SEA – "Educational Telecommunications for Alaska, Executive Summary" (4/82); "Individualized Study by Technology (Integrating Multi-Media Courses Utilizing Technology)" (1982); and "Learn Alaska," resource guide to instructional television, audio conferencing, and computer services (1982)
Arkansas	SEA, 1982 – "Microcomputers in Education – A Bibliography"
Connecticut	State Board, 1982 – "A Guide to School Library Media Programs"
Delaware	SEA, 1982 – "Delaware Instructional Resources for Educators Through Computer Technology" (Project DIRECT)
District of Columbia	SEA, 9/82 – "Computer Literacy Five-Year Plan, School Years 1983-87," includes guidelines for schools
Florida	SEA – "Florida Computing Activities," descriptor of SEA services and LEA pilot projects (3/83); "Florida Instructional Technology Services Handbook" (1982); "Helpful Resources in Instructional Computing" (continually updated)
***Kansas**	SEA – "Technology in Education," quarterly research bulletin for the LEAs
***Louisiana**	SEA, 1983 – Handbook being developed
Massachusetts	SEA, 1982 – "Educational Television Broadcast Schedule and Introduction to the Bureau of Educational Resources"
Minnesota	SEA (with Minn-ASCD, Minn-ASA, and MECC) "A Compilation of Considerations Regarding the Use of a Computer to Help Teach the School Competencies" (1982); and MECC – "MECC Instructional Computing Catalogue" (1982)
Missouri	SEA, 8/82 – "Selecting Hardware and Software for Instruction"
Montana	SEA, 1982 – "Elements of Computer Education – A Complete Program"
North Carolina	SEA – "State Plan for Computer Utilization in N.C. Public Schools" (1/83), "Ready or Not: A Staff Development Series About Computers" (3/83), and various resource guides (1982)
North Dakota	SEA, 1979 – "Microcomputer Guide," a curriculum guide for schools.
Ohio	SEA, 1982 – Ohio Educational Computing Network (OECN), "Program Overview and Progress Report," and "OECN/JVSD" (Joint Vocational School Districts)
Tennessee	SEA, fall 1982 – "Computer Skills Next – A Plan for Grades 7 and 8"
Texas	SEA, 1982 – "Guide for Selecting a Computer-Based Instructional System"
Vermont	SEA, 1982 – "Computer Bits," newsletter, published three times a year
Virginia	SEA, 1983 – "Computer Literacy for Students in Virginia," a list of objectives to provide a framework for teaching computer literacy
Washington	SEA, 1982 – "Computer Technology in Curriculum and Instruction Handbook"
Wisconsin	SEA/CEMREL, 10/82 – "Computers and the Classroom – A Resource Guide"



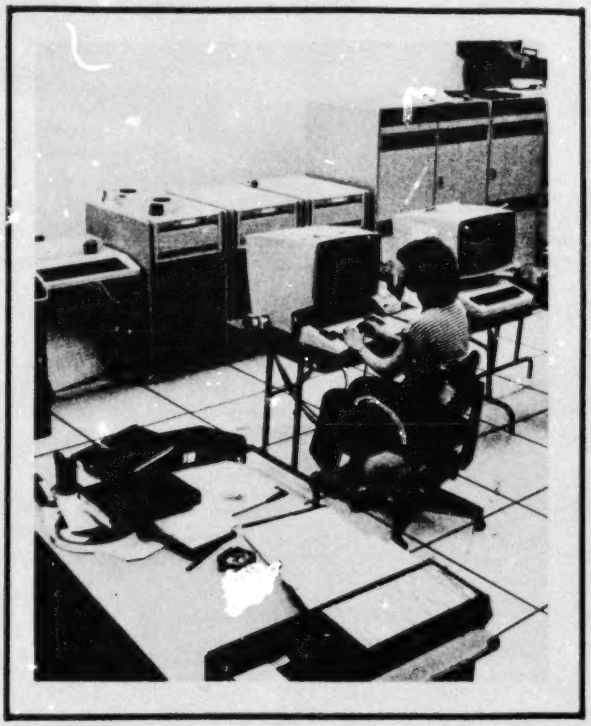
ia and Kentucky – support programs of matching funds to local districts for the purchase of computers or courseware. Many of the legislative initiatives included seed money to establish educational technology programs or to support new computer literacy requirements.

Indiana and Virginia have enacted legislation providing tax credits to companies donating computers to schools; Louisiana has proposed similar legislation. In other states, a variety of cost-saving and educational programs have been proposed or enacted to support educational technology. These include incentives for business/industry and educational institutions to share equipment and facilities (Iowa), tuition for LEA staff to study computer education (Kentucky), aid for higher education technology programs (New York), and funding of state technology centers through colleges and universities (Pennsylvania).

PILOT PROGRAMS – RESEARCH

Although a great deal of activity goes on at the state level to share information about the effectiveness of the new technologies, few states reported being engaged in such research themselves. Among those that are:

- Utah, where the SEA has been directed to research the impact of microcomputers and information technologies on the individualization of education;
- Delaware, which is conducting a pilot program on pupil accounting;
- Florida, which is testing its programs in statewide communications and the cost-effectivness of computer use in classrooms; and
- Minnesota, through its Minnesota Educational Computing Consortium (MECC).



Colorado's position paper on educational technology expresses a common approach to research. It recommends that the SEA "encourage and promote joint ventures between school districts . . . to provide for the development of new and innovative educational systems . . ."; and define "standards, models and exemplary practices in the utilization of technology for dissemination and adoption."

IN CONCLUSION

The great range of activities and their various sources of funding and authority make generalizations difficult. Nonetheless, one can make a few broad statements about the picture of educational technology today at the state level.

- First, the presence of educational technology (in a significant way) is recent. Until two years ago, only seven states had taken any formal state-level action to address the issue of technology in the schools. In 9 states, the initiatives have been taken within the last six months. Today, its presence is all but overwhelming. Thus, not only is the technology era a recent one, but it is growing at an extremely fast pace. Consequently, little comprehensive assessment of the new technologies has been done. In fact, few states have even fully implemented programs set forth in legislation and State Board policies.
- Second, the variety is tremendous, with each state, and virtually every LEA, taking a somewhat different path into the future. Variations reflect different states' policies not only about technology and educational goals, but state and local authority and responsibility, states' levels of funding for education, and relationships of states to high technology industries.
- Third, despite the variety, there has also been a great deal of duplication, given the very short period of time in which these initiatives have emerged. One can conclude, from the duplication of effort and the high level of interest evidenced in the survey responses, that states will benefit from the sharing of experiences with others.
- Finally, the survey reveals that nearly all of the SEAs have opted for the role of facilitator rather than experimenter. Most provide information, resources, training, guidelines, and/or policy support. Very few have elected to conduct research. Assessments of uses of the new technologies are confined largely to courseware. Several states – notably Minnesota through the Minnesota Educational Computing Consortium (MECC) – develop courseware. But only Florida, Delaware, Minnesota and Utah have indicated that that the SEA has a role in conducting research on educational applications of the new technologies.

INDIVIDUAL STATE SUMMARIES

ALABAMA

Beginning with the 1982-83 school year, a statewide pupil accounting system was initiated to provide assistance to the local school districts and reporting comparability among Alabama school districts.

During the 1982-83 school year, the SEA established a laboratory at the state level where computer hardware and software could be reviewed and evaluated. The Department also offers technical assistance to local school districts through its instruction and administration consultants who provide information and advice on the purchase of computers – including software. On June 1, 1983, the SEA established the Educational Computer Technology Unit to coordinate activities in the area of instruction. The SEA also provides inservice training and other assistance to local districts and holds membership in MECC and Project BEST.

ALASKA

In 1977, the Alaska legislature supported a multi-year project – the Educational Telecommunications for Alaska (ETA) Project – which addressed three basic state needs: for faster, more efficient communication among school administrators; for quick access to information about educational resources; and for instructional support for rural students. Through ETA, the legislature has provided funds to develop and implement a statewide satellite-fed television network for lifelong education, an audio conferencing network, and an overall state communication plan.

The current components of ETA are: the Administrative Communication Network (ACN), the Alaska Knowledge Base System, and Individualized Study by Telecommunications (IST). The Electronic Mail System (EMS) and the audio conferencing system of the learn/Alaska Network (a part of ACN) use a regular telephone system to permit conference calls.

Alaska's ETS project initially used Northwest Regional Educational Laboratory (NWREL) computer-based courseware for its rural schools, but has since established regional resource centers to operate the "computerized 'Alaska Knowledge Base' containing information about a variety of educational resources and accessible via the electronic mail system."

IST incorporates a ". . . microcomputer-based method for providing instruction," a set of core courses for 9th and 10th grades, and courses for all grade levels. In September of 1982, IST incorporated multimedia courses utilizing computers which offer complete self-contained courses for isolated one- and two-teacher schools. These courses are also used in other learning situations. IST components include: printed materials, audio cassettes and some video cassettes, computer activities diskettes, and teacher's materials (guides, folders, record keeping).

In July 1981 the legislature funded and authorized the Alaska Public Broadcasting Commission and established the Office of Educational Technology and Telecommunications. At present, that office operates all programs that provide technical support and assistance in classroom uses of microcomputers, audio conferencing, and instructional television – which is available for all ages on a satellite channel, seven days a week, 18 hours a day on the ITV channel and by video cassette. Computer services include the learn/Alaska network for electronic messages and Electronic Mail System between public school districts, resource centers, SEA, and libraries.

ARIZONA

Arizona's State Board of Education adopted a brief policy statement on educational technology in January of 1983, approving the use of computers to supplement education and to teach about the computer. The state education agency has held a forum on educational technology as well as regional workshops for teachers. In January 1982, the SEA established an Information Clearinghouse and Referral Service to assist the state's educators to share information and questions concerning technology. The state board of education is to consider establishing computer literacy requirements for teacher certification and allowing one semester of computer awareness to fulfill the state requirement for one of the four semesters of mathematics.

These activities are continuing and others are being considered.

ARKANSAS

In July 1982, the Arkansas SEA established a microcomputer laboratory to provide teachers and administrators with a resource center where they can review, compare and evaluate computer equipment and software for instructional uses. A bibliography of articles, documents and films – "Microcomputers in Education" – was produced by the SEA in October 1982. (Copies are available through the SEA.) The Arkansas Occupational and Education Information System (AOEIS) provides career information to LEAs through the state's Employment Security Division, using microfiche readers that LEAs may hook into via their microcomputers.

Since January 1983, the SEA has transmitted an electronic newsletter, and since March of this year, an electronic information system – CONNECT*ED – which permits computers to communicate with each other via telephone lines. The system is also used for a communication network among southeastern state education agencies

through the Southeastern Regional Council for Educational Improvement and ED-NET.

On March 17, 1983, the state legislature passed Act 528 to:

- "provide for the implementation of computer-based educational projects" in the LEAs,
- "establish a commission on improving public schools' basic skills opportunities through technology to cooperate with the State Board of Education and the State Department of Education in the development of rules, regulations, and guidelines for computer-based instruction in the public schools,
- "receive gifts, grants, and donations" from private sources, and
- make an appropriation to the SEA for such projects.

Specifically, the legislation called for projects to teach basic skills, then computer literacy in junior high school, and computer proficiency during high school years, as well as to expand opportunities for gifted and talented students.

The established "Commission on Improving Public Schools Basic Skills Opportunities through Technology" will have members from the SEA, the private sector, and two non-voting members from the legislature.

The law also requires the SEA to provide leadership and assistance to LEAs by: providing teacher training; acquiring, testing, improving, evaluating, and recommending software and computer-based instructional materials meeting established standards; and reviewing, approving, and allocating funds for computer-based educational projects from LEAs.

The appropriation supporting these programs is $1 million for fiscal year 1983-84 and $250,000 for fiscal year 1984-85. Act 878 also passed in March 1983, provides for a legislative subcommittee on Excellence in Education to make recommendations on curriculum requirements.

CALIFORNIA

In 1982, California's legislature enacted Assembly Bill 2190, effective January 1, 1983, to establish the Educational Technology Local Assistance Program. This legislation requires the SEA to "establish a committee on educational technology . . . to prepare a sunset review report . . . to transmit the report and recommendations on educational technology to the board . . . and to the fiscal committee of the legislature by March 1, 1984." The bill also prescribes a method of determining the proposed level of funding for the Educational Technology Local Assistance Program. It further states the legislative intent to provide for the actual funding of the program through the annual Budget Act, beginning with the 1982-83 fiscal year.

Under the law, the duties of the state superintendent include:

- "obtaining instructional programming for statewide use . . .,
- "providing for the production of the highest quality educational programs possible within the limits of available resources for distribution on a statewide basis. . .,
- "assisting school districts and assisting regional organizations and county superintendents of schools to work with school districts in developing comprehensive plans for the use of educational technology in their respective school programs . . .,
- "to the extent that funds are available, providing matching funds to school districts for the purchase of technology-related equipment and for equipment repairs and maintenance,
- "negotiating group purchases for equipment in the broadcast and recording technologies, computers and other technologies,
- "developing and implementing teacher training and parent involvement programs to maximize the school and home use of technology for instructional purposes,
- "developing a system for making grants and providing technical assistance . . . for the purpose of developing and operating exemplary programs using technology in instruction, staff development, or administrative communications . . .,
- "providing for statewide coordination" among various groups "concerned with educational technology programs" to facilitate "the development and economical provision of high quality programming," and
- "developing criteria . . .. for awarding grants for educational technology programs . . ."

The Educational Technology Committee is considering these initiatives.

COLORADO

Colorado's state education agency issued a "Position Paper on the Role of Technology in the Educational Process" in December 1982. State board of education action is still pending. The position paper refers not only to instructional microcomputer use, but also to interactive video technology (videotape and videodisc equipment paired with a computer), telecommunications, satellite technology, and holographic photography.

According to the Position Paper, the suggested role of the SEA is to:

- "initiate and maintain a continuing program of research and evaluation to identify and promote the beneficial aspects of technology and to avoid practices which may be harmful or inappropriate to the education of children,
- "work with schools, institutions of higher education, business, and industry to assure that teaching and administrative staffs of the schools are capable of employing technology to benefit the education of all children,
- "establish methods for disseminating outstanding practices and materials . . .,
- "encourage and promote joint ventures between school districts" and other sectors "to provide for the development of new and innovative educational systems,"

- "establish methods for interfacing with other agencies in the development of technology in education."

The paper further recommends that the SEA "fulfill the role of providing leadership in the employment of technology in the educational process" by defining and developing "processes and procedures which will promote the qualitative utilization of both current and emerging technologies in education" by identifying "standards, models and exemplary practices in the utilization of technology for dissemination and adoption."

Additionally, two advisory groups (one composed of representatives from the public schools, BOCS, and higher education; the other from the SEA) have proposed the following roles and activities, subject to revisions, for the Technology Program of the Colorado Department of Education for 1983:

- assist in developing technology curricula and promoting the use of technology in education,
- "provide conferences and training for educational personnel in specific applications of technology,"
- provide special resources to educators needing technological assistance,
- "promote and disseminate the results of research on the educational implications and effects of technology,"
- assist in developing and implementing staff development systems, and
- "serve in an advisory role to accrediting and certifying agencies establishing criteria for technology programs."

Colorado also holds membership in MECC.

CONNECTICUT

Connecticut's General Assembly passed Public Act 81-74, "An Act Concerning Instructional Technology," in April 1981, which provides that:

- the SEA will "have general supervision and control of the educational interests of the state . . .,
- "shall provide leadership and otherwise promote the improvement of education in the state, including research, planning, and evaluation and services relating to the provision and use of instructional technology by school districts," and
- "shall prepare such courses of study and publish such curriculum guides including recommendations for textbooks, materials, instructional technological resources and other teaching aids as it determines are necessary to assist school districts to carry out the duties prescribed by law . . . ."

The SEA was also directed to conduct workshops, assist teachers, keep informed of progress and needs of the schools, and assess and evaluate such programs annually.

On November 5, 1981, the state board of education adopted a policy:

- "to develop a communication network to assist schools . . . ,
- "to share successful practices and products,
- "to coordinate and develop inservice training opportunities for teachers and administrators,
- "to provide school districts with guidelines for both equipment and program selection,
- "to assist school districts in the development and implementation of plans for the incorporation of the computer in the instructional program," and
- "to promote cooperative efforts among educators, government and business and industry in addressing the need for computer literacy."

The State Department of Education also established the Connecticut Educational Telecommunications Corporation to provide instructional television programming. The Department's Learning and Resources Unit provides teachers with information on all aspects of television use, including an annual instructional television schedule and resource guide and teachers' guide to integrate television series into the curriculum.

DELAWARE

Delaware can claim the earliest involvement in educational technology, with a 1966 Title III project, "Educational Technology." In 1971, a consortium of school districts — the Data Information Center for Education (DICE) — was formed to provide computing services to members. In 1976, Delaware's "First State Plan for the Use of Computers in Education" established Project DIRECT — a statewide interagency computer consortium which provides statewide telecommunications systems for computer-assisted instruction in basic skill areas.

In 1980, the SEA adopted the "Second State Plan for the Use of Computers in Education," upgrading DICE to the New Castle County School District Consortium (SDC), setting up a pilot project in pupil accounting in a school district, and beginning the development of longitudinal student data base and software to support the use of testing information for instruction, research, and evaluation. Project DIRECT (Delaware Instructional Resources for Education Through Computer Technology) is subscribed to by LEAs and produces a brief guide to its services.

In November 1982, the Delaware State Board of Education adopted the "State Plan for Computer Utilization in Education for Fiscal Year 1984." This plan accompanied the 1984 fiscal year budget request, and the Governor has included $300,000 in his recommended budget for fiscal year 1984. The plan requests funding to support the use of computers in the state educational system in four priority areas:

- for planning and coordination, training of educational staff, and consultation with local districts in the acquisition of hardware and software,
- to provide the opportunity for all students to acquire computer literacy skills before high school graduation,
- to expand the number of students participating in computer-assisted instruction (CAI) through Project DIRECT from 7,500 to 10,000, and

- to continue the development of the Student Accounting System and extend services to other school districts.

The SEA is also developing a broad five-year plan for the use of computer technology in the educational system, with projected annual detailed plans.

DISTRICT OF COLUMBIA

Washington, D.C.'s "Computer Literacy Planning Group" completed its "Computer Literacy Five-Year Plan" for school years 1983-87 in September of 1982, and the District's board of education approved the following related policies on March 16, 1983:

- "that by the end of school year 1983-84, student computer laboratories be established in all schools, with attention to security needs,
- "that computer literacy and software selection skills be required for all instructional personnel (teachers, supervisors, and administrators) as part of the five-year recertification requirement,
- "that beginning with school year 1983-84, all new teachers would have to demonstrate computer literacy before being granted permanent tenure," a
- "that every student be required to demonstrate a command of the skills that constitute computer literacy before the completion of grade nine, beginning no later than school year 1987-88."

There are six objectives of the District's Five-Year Plan:

- "to develop computer awareness among students, teachers, supervisors, and administrators,
- "to develop and implement a computer literacy curriculum,
- "to design and implement a Computer Training Laboratory,
- "to apply computer technology in the local school implementation of the Computer-Based Curriculum through drill and practice, tutorials, problem solving, simulations, and other appropriate techniques,
- "to apply computer technology in classroom management, including record keeping, tracking of student progress, and reporting student progress," and
- "to apply computer technology to local school management."

The Computer Literacy Training Laboratory was in operation in July 1982, when over 400 elementary and junior high school personnel participated in a month-long "Computer Literacy Training Cycle." Other training cycles were held for senior high school personnel in the 1982-83 school year, and for other personnel in subsequent years.

Under the "Computer Literacy Five-Year Plan," computer hardware and software will be acquired for each school in the District, and "within two years, all schools will be connected to a citywide cable television network, . . . and videodisc technology and internal/external audio and audio-visual teleconferencing will play a role in determining how computers and other interactive technologies are used to educate students."

FLORIDA

Florida Statute 229.8041 was enacted in July 1981, mandating state policy in educational computing: "to use computers and related technology to make instruction and learning more effective and efficient and to make educational programs more relevant to contemporary society." The law further states that to implement this policy, the SEA "is authorized and encouraged to assist school districts, community colleges, and state universities to make appropriate use of computing" with action to include (but not be limited to):

- "providing information and consultation,"
- establishing purchase agreements with hardware and software vendors for LEAs,
- "surveying districts and institutions to determine how available resources for educational computing can be used more effectively," and
- evaluating available equipment and programs to determine effectiveness and cost-effectiveness.

In 1977, the SEA formed the Florida Educational Computing Project (FECP) "to provide technical services in the administrative and instructional use of computers." By 1981, FECP had organized the LEAs, community colleges, and universities into six regional educational computing consortia. Each consortium handled specific projects and served as liaison for educators in its region. In 1981, FECP became a permanent part of the SEA – the Educational Technology Section (ETS) – with five additional divisions of the SEA working toward the effective use of technology.

In March 1983, ETS produced *Florida Computing Activities*, which describes LEA and university schools' instructional computing activities, LEA instructional computing contacts, and descriptors of the six SEA divisions' computing activities. These divisions are:

ETS – Plans and coordinates the state's use of technology to improve education. Instructional and administrative computing support includes:

- a microcomputer contract to purchase systems at discount from approved vendors,
- technical assistance with computer needs, bid specifications, MIS, and data communications,
- hardware/software approvals for large purchases,
- information dissemination through *Ed Tech News*, SEA Electronic Bulletin Board, and computing consortia meetings,
- annual Instructional Computing Conference, and
- Florida Information Resource Network (FIRN), designed to provide data communication links with every public educational institution and school in the state, with pilot projects in progress.

ETS answers questions through a support network of computing contacts and oversees the Florida Center for Instructional Computing (FCIC), and is planning two satel-

lite centers. ETS also supports improved automated reporting and networking through FIRN and the computing consortia.

FCIC – A resource center (located at the University of South Florida) that provides current information on hardware, software, and applications of computers for instruction and school management. Its services include:

- a computerized index of software reviews,
- a collection of software reviews by staff and others,
- a library of courseware and print materials,
- two microcomputer laboratories with various computers and peripherals, and
- a subject file index to aid in instructional computing research.

MIS, Division of Public Schools – provides staff support in instructional and administrative computing. MIS began operation of the Microcomputer Training and Demonstration Laboratory in June 1981, where a variety of hardware and software is available. Staff in the Lab provide training for persons from the SEA, LEAs, community colleges, and other state agencies. Training sessions include both lecture and hands-on instruction.

MIS conducts an annual survey entitled "Educational Computing." Each school in Florida reports the types of microcomputers and their instructional and administrative computing uses. A summary report is available. MIS is also participating in the planning of the Florida Instructional Resource Network (FIRN).

Instructional Television and Radio and Publications Division:

- provides consultative services in management, programming, and technical matters related to instructional TV and radio,
- produces "Florida Instructional Technology Services (FITS) Handbook," a guide to all the services of the section,
- is the source for SEA publications and instructional materials for TV and computers,
- provides for LEA input in selection and review,
- distributes recommended materials, including video series in computing, MECC materials, and limited courseware.

Strategy Planning and MIS – Implements the Electronic Bulletin Board, housed at the Southeast Regional Data Center (SRDC) and accessible by telephone to anyone with a communicating word processor, a dial-up computer terminal, a microcomputer with communication capabilities, an interactive computer terminal connected to SRDC, batch access to any SUS regional data center in Florida, or a 3270-type terminal accessing a specific regional data center. This division began a cost-effectiveness study of microcomputer instruction in public school classrooms in pilot schools in January 1983.

Bureau of Education for Exceptional Students (BEES), Division of Public Schools – Has initiatives in educational technology: SPECIAL NET Electronic Communication/Information System; Exceptional Student Education Management Services Project; Florida Diagnostic and Learning Resource System (FDLRS) Network Media/Management System; FDLRS Instructional Technology Resource Center/Coordination Unit and Center Capacity-Building Grants; and Special Projects for Technological Applications in Exceptional Student Education.

GEORGIA

One of the purposes of a $13.8 million appropriation for fiscal year 1983 was to set up six pilot technical and occupational training schools in Georgia. These post-secondary schools have already had important impact, not only for higher education, but for elementary and secondary programs as well. A number of local school districts have upgraded math and science curricula in order to prepare youngsters to enter the new technical schools. Also, the pilot technical schools have served as the impetus for the development of an SEA pilot program related to educational technology.

With the aid of a Steering Committee of over 40 local superintendents of schools, the SEA has created a Staff Development Center for teachers and administrators which opened July 1, 1983. The Center will offer local educators training in educational management and instructional uses of technology, as well as administrative applications. It is intended as the first of six regional centers to be created over the next several years.

In June 1983, a staff member was appointed to serve as the SEA's planning coordinator for future agency activities related to educational technology.

HAWAII

No response.

IDAHO

In 1983, the Idaho State Board of Education accepted the report from the Commission on Excellence in Education, a total package of recommendations for a program and process that will promote excellence in education. Regarding technology in education, the Commission stated that technology "provides education with a powerful tool in greatly improving the learning process and the productivity of teachers . . . and will affect not only the science and business programs, but virtually every educational program."

The report recommends that educators "keep abreast of technological advances by working closely with business and industry and by utilizing technology to insure excellence in education." Although most of the Commission's recommendations were referred to study groups, the State Board of Education did accept the recommendation that four credits of math be required for high school graduation and that two of these credits may be earned in computer/

calculator science. The SEA is presently "attempting to keep up by being well informed."

ILLINOIS

In March 1983, the Illinois State Board of Education accepted a report on "Computer Technology in Education" that supports "the development of consortia of local school districts to provide continuing and self-supporting services . . . [for] the purpose of providing technical assistance and inservice training, equipment for loan and demonstration purposes, and the availability of centralized software libraries to member state school districts." The report incorporates a survey of computer usage in LEAs and makes recommendations for state support in the form of seed money for the consortia approach. The focus of these state supported efforts is:

"to promote computer literacy for students in all grade levels, as well as to increase access to computers as an aid for instructional activities" and to "include development of software, training of personnel, purchase of hardware for demonstration or loan purposes, and technical assistance."

The report categorizes computer use in education as a management tool, as an aid to instruction, and as a separate subject area in which pupils are introduced to computers and how they work.

The SEA has already been involved in "a number of activities related to computer technology," including:

- facilitating a communication network with terminals at 15 sites connected to the state computer system, especially for data reporting functions,
- establishing a repository of microcomputer programs for CAI in a wide range of subject areas,
- producing a computerized comprehensive career guidance counseling system in a cooperative venture — Project Discover — with other agencies,
- conducting workshops and presentations on various aspects of computer usage,
- providing technical assistance to LEAs on request regarding the purchase of hardware or in areas such as scheduling, school bus transportation, energy conservation, and declining enrollment, and
- using federal funds for state leadership activities and to support three regional consortia. One — MicroIdeas — offers members services that include membership in MECC; one offers the services of a mobile computer van.

In April 1983, the State Board of Education issued Requests for Proposals for the support of vocational improvement activities from fiscal year 1984 funds which include "Education for Technology Program" and "Computer Technology Assistance" (for grants to LEAs to develop computer literacy competencies and "provide for improvement of teacher competency to insure that all students have access to increasing their computer literacy.")

INDIANA

Indiana's legislature passed HB-1981 in April of 1983, effective July 1 of this year. It establishes the Indiana Consortium for Computer and High Technology Education to:

- "establish regional clearinghouses for computer instruction information,
- "coordinate the training of teachers in computer instruction skills,
- "advise the commissioner on the administration of the school technology incentive grant fund . . . and loan fund," and
- report annually to the Governor and General Assembly.

The bill also establishes the school technology incentive grant fund and loan fund for matching funds or making loans to school corporations for the purchase of computer hardware and software, with accompanying appropriations, and authorizes local school corporations to provide funds for these purchases.

Under the Indiana Consortium, plans indicate that the regional clearinghouses will

- serve as sites for computer hardware and software reviews,
- provide subscription services to computer/high technology education research and study,
- provide electronic mail and information exchange,
- coordinate training and retraining of teachers in new and updated microcomputer skills, and
- establish guidelines for computer hardware/software purchasing, as well as administering the above mentioned funds.

Another bill (HB-1962) passed in April 1983 allows a state tax credit to companies donating computers to schools.

In January 1983, the Superintendent's Advisory Task Group for Computer Experience in Elementary and Secondary Schools completed its recommendations and endorsements for the State Board of Education. These included:

- "that a course of computer instruction NOT be a high school requirement,"
- endorsement of "flexibility for the LEAs to meet the goal of providing computer literacy for pupils in the district" through Computer Literacy/Awareness as a separate course, Computer Literacy/Awareness as a unit of study within an existing course, or "a multi-disciplinary approach to the teaching of Computer Literacy/Awareness integrating the instruction throughout the existing K-12 curriculum,"
- endorsed the offering of beginning and/or advanced courses of Computer Education at the secondary level, or beginning Computer Education at the elementary level,
- "endorsed [the] concept of allowing local schools to determine in which subject areas computer instruction should be included in the elementary curriculum,

- "discussed. . . approaches for monitoring local school extent of computer instruction," and
- endorsed " . . . [a] definition for Computer Literacy and minimum proficiences for computer instruction."

These findings were accepted in principle by the State Board of Education.

IOWA

The Governor appointed a High Technology Task Force on May 18, 1982, to examine the status of high technology in the state. "The Report of the High Technology Task Force" was published November 1, 1982, and one of its nine recommendations addressed the role of technology in education, including:

- "expansion of advanced technical skills in the area college curriculum of technical education,"
- placing greater emphasis on prerequisite courses, including computer literacy "for high technology instructional programs, grades K-16, in public and private educational institutions,"
- encouraging partnerships between business/industry and educational systems to strengthen the technical competence of teachers and students,
- providing incentives to encourage teacher preparation and retention in mathematics, science, and high technology instructional programs to provide an adequate number of instructional staff,
- creation of new instructional programs at high school and college levels to prepare students for new and emerging occupations,
- providing incentives "for business/industry and educational institutions to share high technology equipment and facilities," and
- encouraging "greater efficiency and economy in the educational delivery system by providing incentives for the use of telecommunications and other advanced educational technology."

These recommendations have been adopted by the Governor to implement selected recommendations.

KANSAS

On September 21, 1982, the Kansas SEA adopted a one-year initiative to fulfill the state's commitment to developing educational technology. This program includes areas to be addressed at the state level:

- the need for a report to the State Board of Education about microcomputers and their use in the state's schools,
- the development of a guide to outline procedures to establish a microcomputer software clearinghouse within the SEA to identify and evaluate appropriate software, with the first phase of the clearinghouse in place by April 1983,
- the development and dissemination of a quarterly research bulletin for local schools on "Technology in Education" – practical applications of research on uses of technology for improving the quality of education,
- the need to increase ways for LEA personnel to learn about successful educational applications of microcomputers. Planned are five conferences for regional user groups, one state-wide conference, two regional student skill competitions, and 20 inservice workshops,
- the development of a mobile unit equipped with microcomputers and software to be used by SEA staff to provide inservice to small rural schools,
- inservice training sessions for SEA staff to insure that 50 percent of the staff will have minimum competencies in the use of microcomputers, with skills at three levels of competence (a microcomputer laboratory with at least three kinds of microcomputers will be used), and
- "develop a draft of a certification/accreditation plan that identifies the skills needed for teachers to effectively use microcomputers in the classroom."

KENTUCKY

For 1982-83, a Microcomputer Task Force has been set up, and the State Board of Education has approved elective computer courses for the high schools:

- introduction to computers,
- techniques,
- computer science,
- two computer math courses, and
- business/office courses.

The SEA is paying tuition for one person from each of the state's 180 school districts to take courses on the subject. SEA staff have also conducted regional and statewide workshops on software/hardware and computer literacy for teachers and students.

Kentucky's SEA is using instructional television to transmit information regarding computers and for teacher inservice training programs on the instructional use of computers. Television facilities have been in place since 1977-78, when legislation made a direct appropriation earmarked for antennas, receivers, and recorders to those LEAs providing matching funds.

LOUISIANA

The Louisiana State Department of Education conducted surveys of computer use in public and non-public schools in the 1981-82 and 1982-83 school years. The results of these surveys were most recently revised and published in "The Use of the Computer in Louisiana Schools" in April 1983.

The SEA provides assistance to LEAs through an increasing number of activities, such as

- Computer Awareness Workshops for teachers and administrators,
- preparation and distribution of information packages about instructional uses of computers, guidelines for acquisition of hardware/software, and guidelines for inte-

grating computer use into school curricula,

- establishment of a statewide network of Instructional Computing Resource Centers (ICRCs) to aid in orchestrating the development and distribution of instructional computing resources and services to educators,
- participation on a state level in regional and national educational computing organizations that develop and distribute instructional software,
- "establishment of a structure and process to continue to identify problems and changing needs in this area,"
- use of instructional television in computer training, and
- seminars on how to design and evaluate hardware and software.

The SEA also holds membership in MECC and serves both public and non-public schools through secondary MECC memberships. The agency is looking into state group purchase contracts and designing a computer handbook. Legislation is pending in committee to allow a state tax credit for the donation of high-tech equipment to schools.

In October, 1982, the State Superintendent of Education appointed a Task Force on Computer Literacy whose final report is to be accepted by the State Superintendent in July 1983. The nine recommendations of the report are:

- that "computer literacy be defined for our students, teachers, and administrators;
- " . . . that computer literacy be an integrated part of the total K-12 curriculum. All students should be computer literate by completion of 8th grade; . . . that computer science/data processing (information systems) be separate curriculum components with their own course of study offered as electives at the secondary level . . . [and] that the State Department of Education integrate into existing curriculum guides computer literacy skills appropriate to the grade level and subject matter of each guide;"

That the State Department of Education:

- " . . . insure equality of access by encouraging appropriate funding, providing curriculum guides, [and] offering appropriate hardware and software support;
- " . . . coordinate and disseminate information on inservice education programs . . . [for] teachers and administrators;
- " . . . maintain continuing dialogue with colleges of education to work out the best ways of incorporating the following areas into pre-service education: computer education, integration of computers in K-12 instruction, formal coursework in the use of computers in education, and revision of Bulletin 996, *Standards for Approval of Teacher Education Programs* to include standards for computer education;
- " . . . set up and maintain a system for the collection and dissemination of software (courseware reviews), taking full advantage of existing review and evaluation organizations . . . " and provide LEAs with evaluation instruments for educators and inservice in using such instruments;
- provide technical assistance on available hardware, secure state purchasing agreements, and have a planned approach to hardware maintenance;
- initiate forums of discussion with business, industry, and hardware/software vendors about the mutual needs of and assistance to those groups and education, and vice versa; and
- " . . . that a special state appropriation be sought for purchase of computer hardware, software, training and support."

MAINE

Maine's SEA has recently established the position of "Microcomputers in the Classroom Consultant." This staff member conducts regional computer seminars for schools, offering exposure to various hardware and software and providing inservice training. The consultant also helps to coordinate the sharing of technical services ongoing in the LEAs.

There is also a "Microprocessor Review Committee" operating within the SEA to educate the agency's staff about current activities related to the use of computers, to review instructional software, to advise the Classroom Consultant, and to work with the data processing section to review administrative software. Local school districts – particularly parents – display strong interest in using microcomputers in education.

MARYLAND

Maryland's earliest reported activity related to educational technology was 1969 legislation which established the state's instructional televison system (ITV). There has been no recent legislation, but a State Task Force on Technologies has prepared recommendations for the State Board of Education. The State Board received the report in May 1983. Recommendations for specific guidelines on the use of microcomputers in instruction were requested at that time.

Maryland's SEA has established a state data base to share evaluation information about instructional software with the LEAs. The SEA has also sponsored a program to use microcomputers in special education in the IEP/ARD developmental process.

MASSACHUSETTS

The Acting Associate Commissioner appointed a Division of Curriculum and Instruction Task Force on Instructional Technology in August 1981, and a report was presented to the State Board of Education in August of the following year. "Instructional use of technology" is defined by the Task Force as: the "use of computers and video technology in instruction; selection and use of instructional software; development of 'computer literacy' and 'critical television viewing skills' curricula, [and] use

of computers for classroom management."

The Task Force recommended the formation of an instructional technology advisory group to guide the SEA in planning and implementing activities to:

- provide information on developments within its constituencies to influence the Department's activities in instructional technology,
- recommend activities in instructional technology for the SEA to conduct,
- propose policy for adoption by the State Board of Education and the SEA,
- serve as an advocate for adoption of appropriate instructional technology practices in the schools,
- assist the SEA in identifying and securing resources for increased use of instructional technology in the schools,
- facilitate the coordination of instructional technology activities within the SEA and between the SEA and other agencies, and
- serve as the Massachusetts State Team for Project BEST.

The Task Force's program recommendations for the SEA and the Division of Curriculum and Instruction are to:

- assist schools and the SEA in the "adaptation and development of instructional technology,
- "coordinate statewide efforts in school adoption of instructional technology,
- "assist districts in implementation of cable television technologies,
- "initiate interstate consortia to develop electronic networks for information sharing,
- "develop school and departmental access to statewide electronic information networks,
- "encourage application of private and public resources to promote equality of use of instructional technology statewide," and
- "establish priorities and criteria for . . . selection and use of video and computer-based materials and software."

These recommendations were designed to coordinate various activities already begun, and the Task Force suggested specific programs and activities to fulfill each recommendation.

The results of a survey of "Computer Use in Massachusetts Schools" were published in July 1982 by the SEA. Eighty-one percent of the LEAs responded to the survey, indicating the number of computers in use by local districts, their applications, and a rating of services desired from the SEA.

In December 1982, the SEA issued "An Outline of Current Activities Related to the Use of Computers in School Instruction," which listed specific SEA activities to assist LEAs in the adoption and/or utilization of computers in instruction. These include:

- a computer-based resource bank of information (on curriculum, hardware, software, etc.),
- development and distribution of advisory papers,
- investigation of hardware/software review services relative to the purchase of membership,
- investigation of the options of buying or producing computer/video-based courseware,
- coordination of participation in national projects,
- assisting LEAs,
- coordination of SEA activities with those of outside groups, and
- investigation and implementation of purchasing strategies.

The SEA has also established the Bureau of Educational Resources (BER) which coordinates the state's television agency (MET) and offers resource services to educators, such as: Resource Information and Referral (RIR), instructional technology, and dissemination.

MICHIGAN

The Michigan Project BEST Committee has developed a position statement on technologies which includes the formation of a Modern Technologies Unit in the Department. The position paper will be available after State Board action planned for May 1983. The 22 Regional Educational Media Centers (REMCs) are active in providing services to the LEAs, and the SEA created the position of Technologies Specialist several years ago. Reorganization plans include creating a position of Assistant Superintendent for Technology.

MINNESOTA

In 1973, the Minnesota Legislature supported a variety of education projects — through the funding of the Council on Quality Education Projects (CQE) — many of which were technologically related. Among those established in 1973 was the Minnesota Educational Computing Consortium (MECC). MECC's purpose was to assist Minnesota schools and colleges in implementing educational computing. However, since its creation, MECC has expanded to offer membership services not only to Minnesota educators but to SEAs and local districts around the country.

MECC's services include:

- the development and distribution of microcomputer courseware,
- inservice training for educators and the development of training materials,
- instructional computing assistance through newsletters and microcomputer purchase contracts, and
- technical support, including a time-share system, local networking, and other technical projects.

To implement these services, the SEA, the Minnesota Association for Supervision and Curriculum Development, and the Minnesota Association of School Administrators have produced "A Compilation of Considerations Regarding the Use of a Computer to Help Teach the School Curriculum." This handbook includes guidelines to

- curriculum considerations,
- software and hardware selection,
- software development,
- implementation and training, and
- bibliography and research.

Additionally, in 1981, the Minnesota legislature funded AEDS (Alternative Educational Delivery Systems) grants for models of alternative delivery systems and a two-way, low-power television demonstration model. The AEDS demonstration models include computer-assisted instruction, extension courses offered by correspondence, videotape courses, and audio-visual courses. The low-power television system grant and study includes surveying the needs for and the maximum benefits to small, rural school districts.

On January 18, 1983, the State Board of Education made a minimum program recommendation that the state's schools "will promote computer literacy through various of the disciplines."

MISSISSIPPI

Mississippi's state education agency has conducted statewide surveys on the use of computers in the schools. It also provides local districts with print information related to computer technology. Under recent legislative changes, plans related to technology are being developed for the State Board of Education.

The SEA's Vocational-Technical Division offers technical assistance to local school districts, including mobile classrooms for instruction in high technology subject areas. The mobile units — which were built by students — travel throughout the state.

MISSOURI

Much of the state-level activity in Missouri has been generated by the state's Instructional Technology/Microcomputer Committee, which was formed by the Department of Elementary and Secondary Education. Among the Committee's 1982-83 activities are:

- meetings with the Missouri School Boards Association's Computer/Technology Advisory Committee concerning the school boards' MECC membership and activities,
- planning and hosting three statewide conferences on microcomputers in March 1983,
- preparing a report to the State Board of Education (October 1982) on microcomputer use and the need for school district assistance,
- meetings with five rural school districts concerning McREL technology projects,
- scheduling four computer literacy workshops in December of 1982 for 80 SEA staff members with the McREL consultant, and
- preparing a report for the Commissioner (December 1982) on the Department's microcomputer administrative and instructional activities.

SEA activities related to microcomputer technology are handled by various departmental divisions (Instruction, Career and Adult Education, Urban and Teacher Education, and Administration). Activities with and for local school districts include

- publishing a guide — *Selecting Hardware and Software for Instruction* — in August 1982,
- providing matching funds and/or approval of acquisition of hardware or software,
- directing McREL Project,
- providing inservice training programs,
- funding the development of an automated system for individualized education plans (IEPs) in one local district on a System 33, and funding the transfer of that system to another LEA,
- providing funds for subscription fees and line charges for 30 LEAs to participate in SPECIAL NET,
- assisting LEAs in automating accounting systems on both microcomputers and mainframes and developing software for LEAs to estimate school monies entitlements,
- consulting with LEAs on the application of a transportation scheduling system, and
- consulting and cooperating with several LEAs on the electronic exchange of data.

Within the SEA, administrative activities related to technology include:

- the purchase and utilization of a microcomputer for record keeping functions for Highway Safety Program reports,
- obtaining software for LEAs to account for commodities and to plan nutritional feeding,
- providing consultative services or department inservice training by the Data Processing Section for all agency sections requesting assistance with the acquisition or use of microcomputers or software,
- the installation of a microcomputer in the Commissioner's office to provide electronic mail service with the Council of Chief State School Officers, and
- the acquisition of microcomputers on loan or through grants for various department sections.

MONTANA

The Montana State Board of Education adopted "A Proposal in Computer Education" in 1982 "to begin active programs to move our public schools toward meeting the computer challenge . . .

- "by training teachers to be competent in the knowledge of how computers are used in their field of specialization and competent in the ability to incorporate the use of computers in their instructional processes," and
- by directing all public schools to "begin the process of providing the education necessary to show the students how their place in the job market of the future may be affected by computer knowledge, providing hands-on experience in computer use, and knowledge in computer literacy."

Since 1981, the Montana SEA's computer specialist has held 18 conferences with 70 LEAs as part of the NSF computer education dissemination project. In 1982, the SEA sponsored the First Annual Rocky Mountain Computer Conference (a second is planned for 1983); 20 districts formed a network with SPECIAL NET for electronic mail and information exchange; and one of Montana's school districts was on the Project BEST national telecast.

In May 1982, the State Superintendent appointed the Montana Task Force on Computer Education. Among its activities and responsibilities are:

- the preparation of a handbook entitled "Elements of Computer Education: A Complete Program,"
- planning a statewide staff development program to offer inservice workshops on instructional computers,
- preparing a videotape presentation on the need for computer education in the schools and on a variety of programs, classroom management techniques, administrative and curricular plans, and suggestions for starting a school computer program, and
- sponsoring three Bilingual-National Origin Conferences involving the use of technology in this educational area.

The SEA has created a project for deaf-blind students that makes use of computers. Also, the agency's computer specialist is working with a legislative subcommittee to establish Computer Education Training Centers to serve schools and is discussing the role of computer technology in the state's development.

NEBRASKA

Economic constraints have severely limited any state-level activity related to educational technology, Nebraska's SEA reports. However, since the state's new Commissioner of Education places high priority on the use of computers in the schools, state education officials expect increased activity in the future.

NEVADA

Nevada's SEA has established a "Microcomputer Resource Center" to assist local districts in using "microcomputers to enhance their effectiveness in administration, classroom management, and instruction." The Center has five primary objectives:

- "to allow an educator to review and evaluate an instructional or administrative program" before purchase for the local district, through a "lending library" of publications, recommendations, and software, including catalogues with periodic listings,
- to review courseware, to furnish information on requested or specific programs, and to furnish programs, reviews, instructions, and blank review forms for completion by borrowers,
- to collect and publish reviews of courseware and to assess quality, applicability, ease of use, etc., incorporating borrowers' reviews for summary, and
- to establish a Computer Assisted Instruction (CAI) resource center to carry out the preceding objectives and to allow LEA personnel to interact with a variety of hardware and software products (the Center will be furnished with each of the three microcomputers used most often; LEA personnel will be encouraged to come to the Center to compare products and to facilitate their evaluations of courseware; and Center staff will be available to assist or answer questions), and
- to provide inservice training to SEA and LEA staffs in educational and administrative use of microcomputers, including hands-on training, introductory sessions on literacy activities and overviews of CAI, and advanced sessions on software evaluation, authoring systems and computer languages.

NEW HAMPSHIRE

Althouth there is a great deal of activity throughout New Hampshire, it is, for the most part, locally initiated. SEA Career Education Funds and ECIA Chapter 2 funds have been used by many New Hampshire school districts for the purchase of computers and software. Inservice training and computer courses are handled at the local level.

The SEA reports "a lot of activity" from non-SEA advisory user groups composed of teachers and administrators interested in computer technology or using computers to "exchange the best of ideas" and new information. These groups hold statewide conferences three or four times a year. Several institutions of higher learning are also conducting short-term courses in computer education for teachers.

NEW JERSEY

Although New Jersey's proposed legislation is still awaiting action, the Governor signed Executive Order No. 12 on July 23, 1982, establishing a Commission on Science and Technology to conduct a study and recommend "actions to improve the scientific" and technical research and "institutional capabilities in the state" and to "determine the requirements of industry, labor, higher education, and government in undertaking a joint effort to encourage the development of a high technology economy."

The pending legislation would allow local districts to adopt courses of study in computer literacy which would be governed by SEA rules and regulations.

The SEA was recently reorganized, and the General Education K-12 work unit was assigned the responsibility of coordinating activities related to educational technology. Also, various staff development activities have been provided for SEA personnel to increase their knowledge and expertise in the area of technology and its applications to education.

The SEA offers assistance to LEAs to develop and improve LEA technology programs, has developed a manual for inservice training in computer literacy for adults, and is actively involved with Project BEST. An SEA committee works with other state education agencies and organizations to advise on programming selection for educational television.

NEW MEXICO

No response.

NEW YORK

The state education agency has recently established the Center for Learning Technology, whose purpose is to organize and bring together things relative to learning technology for elementary, secondary, and post-secondary schools – especially microcomputers, software, curriculum development, and the like. The SEA is also currently considering the possibility of forming networks throughout the state in the area of educational technology.

In 1982, the New York state legislature enacted two measures – Chapters 561 and 562 – related to the use of technology in higher education. Chapter 561 provides "for the construction of the center for industrial innovation on the campus of Rensselar Polytechnic Institute . . .," setting up a corporation to prepare a facility program and financing plan. Chapter 562 authorizes the New York State Science and Technology Foundation to designate and support centers "for advanced technology in such areas as integrated electronics, optics, biotechnology, and telecommunications . . ." with an appropriation of $500,000 for this purpose.

Two other bills – concerned with educational technology for elementary and secondary education – died in committee in 1982. One would have created an experimental project on the use of instructional television and other electronic equipment in remedial instruction programs ($842,000); the other would have amended education law to enable the Commissioner to adopt rules and regulations to coordinate the development, use, and funding of educational technology and instructional programming services ($5 million).

NORTH CAROLINA

In 1979, North Carolina's chief state school officer established an Instructional Computing Project Task Force to recommend microcomputer policy. The Task Force developed guidelines for schools, set up a contract to purchase microcomputers at discount, conducted workshops for teachers and LEA staff, and established a microcomputer laboratory.

In 1982, the State Superintendent assigned responsibility for microcomputer projects in the state to the SEA's Educational Media and Technology Services Division. Recent activities of the Division include:

- creating two data bases about microcomputers,
- evaluating hardware and arranging contracts for purchases,
- conducting regional workshops, oriented toward computer literacy and awareness for teachers and administrators,
- developing two videotapes about microcomputers,
- reviewing courseware and preparing bibliographies of approved courseware,
- developing bibliographies of books and journals on microcomputers and related materials,
- surveying schools regarding the current status of microcomputers in the schools,
- conducting workshops for SEA personnel, and
- working with state universities to design and conduct workshops on the use of microcomputers in education.

Two publications produced under this plan are "Procedures for Organizing Computer Courseware in the School Media Collection," (summer of 1982) and "Ready or Not: A Staff Development Series About Computers" (a collection of 19 staff development programs about computers for broadcast on North Carolina public television and available on cassette copies – February 1983).

The Department of Public Instruction produced a "State Plan for Computer Utilization in North Carolina Public Schools" in January 1983, "to establish a philosophical basis for acquisition and utilization of computers for administrative and instructional purposes in LEAs." The plan includes:

- suggested elements of computer literacy,
- recommendations for using microcomputers in schools for administrative and instructional purposes,
- a sample curriculum design model incorporating the developmental sequences of computer awareness, exploration, and specialization for grades K-12, with suggested objectives, types of activities, and implementation strategies, and
- a sample administrative model.

Proposed legislation (still pending action) would establish a Computer Commission and give that commission authority over Information Processing. There is also proposed legislation to authorize the Legislative Research Commission to study the teaching of computer literacy in public schools and community colleges.

NORTH DAKOTA

North Dakota's SEA has purchased membership in MECC, enabling local school districts to purchase computer software at reduced prices. The agency has also secured bids for group purchases of microcomputers at discount rates.

Interest in instructional technology is of long standing in North Dakota. SEA studies of computer instruction

were begun as early as 1967, and a Statewide Computer Network for High Schools has been a topic of discussion since 1974. In 1975, the state legislature passed a resolution to study the possibility of a statewide computer system, and schools began that year to participate in the Computer Loan Service.

In 1978, the SEA held one-day computer workshops for the first time, and the first edition of "Microcomputer Guide" – a curriculum guide for schools – was distributed to school districts in 1979. The SEA recommends that a course in introductory computer programming be offered to 10th through 12th graders, and that an advanced programming course could be offered to 11th and 12th grade students. The agency is now in the process of establishing a state committee on computer technology in education and continues to provide workshops and to furnish information to local districts on educational technology.

OHIO

In 1979, the Ohio General Assembly approved legislation appropriating $7.1 million to establish a computer network – the Uniform School Accounting System (USAS). Under this legislation, the Superintendent of Public Instruction appointed an advisory committee – the Ohio Committee for Educational Information Systems (OCEIS).

Among the activities and guidelines established by OCEIS are:

- setting up the Ohio Computer Education Network (OECN)(1979) comprised of voluntarily organized school districts,
- encouraging existing data processing facilities to participate in OECN,
- utilizing interactive time-sharing computer systems,
- limiting the number of network sites,
- offering services of the SEA Division of Computer Services and Statistical Reports in the development of data processing equipment selection (but avoiding involvement in actual selection),
- requiring all data processing equipment and software to meet State Board of Education requirements,
- having software used by OECN sites which must support USAS, and
- encouraging, but not requiring, OECN sites to use state developed and supported software.

The following year, the General Assembly approved a 1981-82 biennial appropriation of $13.5 million to assure the continued growth of the technology project and directed OECN to provide support for both administrative and instructional programs. The services provided now include:

- Ohio Career Information Services (OCIS), a career counseling system to explore career possibilities and assist students, counselors, and teachers in selecting appropriate higher education programs,
- Cincinnati Instructional Management System (CIMS), a battery of programs for elementary and secondary math and reading instruction which permit teachers to monitor individual progress and prescribe work accordingly,
- Special Education Decision Making and Child Information Management System (EDCIMS), to keep comprehensive records on individual learners, track their status, and offer access to data on individual, group, or total handicapped learner population,
- other administrative and student accounting services (scheduling, grade reporting, inventory control, vehicle maintenance, etc.), and
- the SEA offers OECN member school districts a strong program of technical assistance, development, and support, including inservice seminars, on-site training (SEA classroom), and software demonstrations. OECN produces a handbook outlining the services offered.

OKLAHOMA

The Oklahoma State Department of Education has recently been expanded to include two new organizational sections – Instructional Computer Resources and Word Processing. These join the agency's previous sections which also involve technology: the Data Center, the Media Resources Section, and the Communications Section.

The SEA's Communications Section has the responsibility of handling computerized searches of the literature.

OREGON

Although Oregon has no established State Board of Education policies related to technology, one of the Board's priority objectives for 1982-85 is the improvement of the performance of educational programs in the public schools and colleges in terms of quality and cost, including a priority "to increase the use of technology for instruction, instructional management, and school program management."

The SEA coordinates the activities of the Oregon Educational Computing Consortium (OECC), a local school district consortium organized in 1981 to share ideas and information on hardware and software and to distribute copies of locally developed software to member schools. Depending on 1983 budget allocations, the SEA will provide inservice training for LEAs through state agency staff or through the consortium. There is active grass-roots interest in instructional technology, the SEA reports, and the majority of local schools use their block grant funds to purchase hardware and software.

For several years, the Oregon SEA has used the consortium approach to the production of instructional television materials and has been a charter member of AIT projects.

PENNSYLVANIA

Pennsylvania's General Assembly passed legislation in 1982 establishing the Ben Franklin Partnership Fund

Board, effective July 1, 1982, to December 31, 1988. The Fund Board operates under the Department of Commerce to help finance the establishment and operation of advanced technology centers across the state by means of grants through colleges and universities.

Both the State Board and the Pennsylvania Assembly are currently considering proposed revisions to the School Code and to curriculum regulations that relate to educational technology, including the possible requirement of a course in basic skills in computer technology.

In the last three years, the SEA has developed:

- a 15-lesson computer literacy course for students and teachers to familiarize them with the workings and logic of the computer. The course presents a brief history of the computer, takes the learner through several programs in BASIC, and teaches how to write and successfully run programs in BASIC.
- teleconferencing,
- the piloting of PENN*LINK (information-based communications system) for electronic mail,
- a tracking system for special education, and
- workshops and inservice training to assist teachers and administrators in the understanding and use of technology in the schools.

RHODE ISLAND

Rhode Island's Board of Regents is considering a policy statement related to educational technology at the present time, but it has not yet been announced.

A "Technology in Education" initiative was proposed by the Governor in November 1982, and will provide funds for resources (hardware, software, and training) for elementary and secondary levels of education over the next three years. Details of this initiative are expected to be announced sometime in 1983.

SOUTH CAROLINA

South Carolina's technology initiatives were not confined to education, but addressed management concerns for all branches of state government. In 1981, the legislature enacted Section 11-35-1580, South Carolina Code of Laws, assigning the state's Information Technology Management Office the responsibility for:

- assessing the need for and uses of information technology,
- administering procurement and contracting activities for governmental bodies,
- providing for disposal of related surplus property,
- evaluating the use and management of information technologies,
- operating inventory and accounting reporting systems,
- developing policies and standards for management in government,
- initiating a state plan for management and use of information technologies,
- providing management and technical assistance to state agencies, and
- establishing a referral service for state agencies seeking technical assistance in this area.

The "Information Technology Planning Manual for Agencies in South Carolina State Government" was published by the Information Technology Planning Office in April 1982.

Using the Technology Planning Office's guidelines, the SEA developed (in December 1982) its own detailed "Information Technology Plan for Fiscal Years 1984, 1985, and 1986." The plan outlines the agency's mission and objectives for specific information technologies:

- a telecommunications network,
- voice, data, radio, and video transmission,
- data processing, including accounting systems, mailing list, film library, administrative record keeping, and reports systems,
- aid to districts, including basic educational data system (BEDS), budget forecasting, certification, and cognitive and basic skills assessment,
- microcomputer processing,
- OCR, word processing, copier, facsimile, electronic mail, micrographics, printing, typesetting, and graphics technologies,
- consultant services, and
- information technology instructional services.

The SEA has also formed a Computer Literacy Committee to study, evaluate the need for, and provide information on technology to the schools. The Committee will also establish guidelines for the development of an information technology curriculum.

SOUTH DAKOTA

South Dakota's State Board of Education policy related to technology is the inclusion in the Administrative Rules (effective July 1, 1983) of the requirement that "a teacher instructing a course in computer programming or hardware lasting nine weeks or longer shall have a minimum of eight semester hours in computer-related courses, including at least four semester hours in programming language and two semester hours in fundamentals of computer systems."

In May 1982, the SEA conducted a survey of "Computers in South Dakota Schools" to determine the numbers of computers in use or projected, the types of computers used, the grade levels where they were utilized, and LEAs' needs for assistance. In December 1982, the SEA worked with McREL (Mid-continent Regional Educational Laboratory) to establish policies for computing literacy for SEA internal staff purposes as well as for services to LEAs.

The South Dakota Department of Education has participated in workshops with McREL, Project BEST, and SAME (State Association of Microcomputer Educators),

a statewide users group. Recommendations will be submitted to the State Board of Education in 1983.

TENNESSEE

The State Board of Education adopted a "Statement of Policy Pertaining to Computer Literacy" on January 7, 1983. The policy establishes the goal that all children in the public schools learn basic computer skills before entering high school, and recommends a "Computer Skills Next" proposal to the legislature to budget for: teacher training, state support for the purchase of hardware and software, and technical assistance and support to LEAs to carry out the program.

The draft of "Computer Skills Next" was prepared by the Tennessee Statewide Microcomputer Advisory Committee (representing LEAs, SEA, and colleges) and the SEA Computer Coordinating Committee in the fall of 1982. It proposes:

- a computer literacy curriculum and a plan for its implementation in grades 7 and 8,
- curriculum goals and objectives for grades K-8, and
- a grades 7-8 teacher training plan for computer literacy.

"Computer Skills Next" also examines the acquisition of microcomputer hardware and outlines additional resources needed at the state level. Timelines are proposed for 1983-84, and the proposal notes plans to focus next on guidelines for computer science courses at the secondary level.

TERRITORIES

Typical of the responses from the territories is the statement that technology is "creeping into our islands." One SEA reported that it has been using computers since 1981 and that each high school has two microcomputers and computer courses. Another is planning a high school computer course. However, each reply indicated strong interest in learning about the technology initiatives in place or recommended in the states.

The Territories include: American Samoa (Tutuila), the Commonwealth of Northern Marianas, Guam, Puerto Rico, the Trust Territories, and the Virgin Islands.

TEXAS

Although the 1982 recommendations of Texas's legislative committee have been endorsed by the State Board of Education, no legislation has yet been written to include them. Among the committee's recommendations are:

- that the SEA should "emphasize the importance of science, mathematics, and technology in education,"
- that the SEA should "encourage access to computer literacy for all children,"
- that "the State Board should review Teacher Certification requirements to assure computer literacy and establish a program for effective inservice training,"
- that "the legislature should support efforts to encourage technology in education by increasing monies flowing to education service centers to provide for inservice training for teachers and incentive funding for hardware and software,"
- that the SEA "should establish funding priorities to support technology in education in the next biennium by establishing a data base of information about the applications and efforts of technology in education,"
- that the SEA "should assume a leadership role in establishing long- and short-range policies and plans on the use and implementation of technology in education," and
- that the SEA "should establish and staff an interdisciplinary division of technology in education to act as a catalyst and focal point at the state level."

Additionally, the Texas SEA "supports the acquisition of a set of universal competencies for all public school professionals," and the Task Force on Essential Computer Competencies for Educators has drafted a document (January 1983) outlining competencies in educational applications, implementation, attitudes, software, programming, hardware, computers in society, general applications, informational resources, computer terminology, and future trends.

The SEA has also published a "Guide for Selecting a Computer-based Instructional System" for distribution to LEAs. It outlines a plan to integrate the computer into the instructional program as a medium (to deliver instruction and instructional content), as an object of instruction, and as a tool — a new way to think, design, create or solve.

The state education agency has established a statewide courseware evaluation network and a statewide teacher training network.

UTAH

In November 1981, the Utah State Board of Education adopted a position paper — " The Use of Microcomputers in the Education Process" — that defines the leadership role of the SEA:

- to define and develop internal and external processes and procedures, with the outcome being the definition of standards, accepted practices, and models,
- to incorporate the appropriate uses of microcomputers into state curriculum development, approving materials through the same process as for other textual materials,
- to define certification requirements for the various disciplines which will be affected by the use of microcomputers,
- to study and define areas of microcomputer technology related to vocational preparation and to meet the needs of the vocational education program while promoting

the most effective use of hardware and software in the total education process,

- to research the impact microcomputers and information technologies have in the individualization of education,
- to develop demonstration projects that apply to appropriate research and development activities,
- to develop and implement ongoing needs assessment and evaluation processes, and
- to establish an advisory council from all education institutions for system-wide coordination.

In addition, the Position Paper identified specific service and leadership activities for the SEA:

- the establishment of a clearinghouse for materials from all sources,
- curriculum validation (as appropriately performed by the SEA),
- inservice training by the SEA to include the use of microcomputers and software in the education process,
- the development of curriculum, learning strategies, and training in user languages,
- the establishment of statewide user groups in curriculum and application areas,
- a curriculum to develop computer literacy, and
- a cooperative state research project including all interested educational institutions.

VERMONT

Staff members from Vermont's SEA serve as computer consultants to local school districts, teacher groups, and local school boards, and have published *School Use of Computers in Vermont,* a survey of how schools are using computers which is currently being updated.

Vermont is also a member state of Project BEST, and in an October 1982 teleconference, staff members explored:

- how the Department of Education can use computers and software to better manage the agency,
- what should the SEA's plan be for staff members in special areas to deal with the impact of computers, and
- how will the SEA serve the state's schools in the area of computer technology?

The Department of Education's Educational Resource Center has published a bulletin since 1982, "Computer Bits," apprising readers of:

- happenings in VECTOR (Vermont Educational Computer Technology Organization), a private user group,
- results of various surveys on the use of computers,
- information resources for hardware and software, and
- new publications.

The SEA has issued certification endorsement guidelines specifying computer skills or knowledge in ten areas: elementary education, foreign language, mathematics, library/media, science, social studies, vocational agriculture, business and office occupations, distribution and marketing, and trades and industry education.

VIRGINIA

In 1982, the Virginia State Department of Education established the Division of Instructional Media and Technology to coordinate activities within the agency. These activities include:

- an organized approach to all media management,
- assisting LEAs' initiatives, including development, dissemination, production, and utilization of computer literacy competencies for teachers and students, and
- workshops and statewide conferences.

The SEA holds membership in Project BEST and Project SLATE.

The Virginia legislature enacted Resolution HJR 61 on February 23, 1983, establishing a joint subcommitee "to study initiatives to advance computer-assisted instruction" and submit recommendations to the 1984 session of the General Assembly. Also passed was HB-30 appropriating $400,000 in seed money which is to be matched by local school districts for procuring hardware and software; $70,000 for inservice training for teachers; and $50,000 to establish a laboratory for hardware and software. Another bill passed this spring — HB-373 — permits companies to obtain tax credits for donating equipment to schools, and establishes the SEA as the body to determine the educational appropriateness and market value of such donations.

A State Board of Education committee's recommendations are pending regarding accreditation standards for students — that all students shall have educational experience with computer technology prior to high school graduation. The State Superintendent has recommended that each student be provided educational experiences with computer technology and with its ability to solve problems and provide access to knowledge. This recommendation is also pending action.

The SEA has committees working to develop computer literacy inservice programs for teachers and administrators and to develop guidelines for computer literacy curriculum delivery systems, along with the computer configurations needed to support them. In addition, the agency has established an in-house committee consisting of one representative from each curriculum content area to develop a state plan for instructional computing.

WASHINGTON

The Washington SEA has appointed a Task Force for Computer Technology in Curriculum and Instruction which is to make a presentation to the State Board of Education in 1983.

In 1982, the Task Force published a comprehensive five-part *Computer Technology in Curriculum and Instruction Handbook* for LEAs to use in building computer instruction programs and has provided inservice training across the state in the use of the handbook. The handbook

provides a planning guide for local districts to decide:

- the potential uses of computers in classroom settings,
- the development and management of programs,
- direct instructional applications and instructional support functions,
- needed staff development for teachers and administrators in learning about the computer itself,
- selection of appropriate computer hardware and software, and
- where, how, and when to obtain additional information.

The handbook, which is scheduled for periodic updating, contains a series of guides: "So You Want to Use Computers," "Design for Staff Development," "Courseware Evaluation," "Resources," and "Practitioner's Directory."

Washington's SEA is a member of Project BEST and KNOW-NET (knowledge dissemination projects) and has formed nine Educational Service Districts joined together to form the Washington State Educational Computing Consortium.

WEST VIRGINIA

The West Virginia Department of Education has received an allocation of $750,000 from the State Legislature to procure a microcomputer network system. This amount will be supplemented with $600,000 of Appalachian Regional Commission funds as approved by Governor Rockefeller. This microcomputer network system will allow for the teaching of computer literacy, for computer assistance instruction, and for the teaching of the computer skills required in many occupations for both secondary and adult students. The initial allocations are for the implementation of the microcomputer network in 17 vocational-technical schools, serving 21 counties. At each of these schools, a 20-station microcomputer system will be installed and will be connected to a central library at the vocational-curriculum library at Cedar Lake by use of a dial-up communication system. The hookup will permit the sharing of computer programs among the schools of the state. The computer network is designed so that it can be expanded to include additional vocational schools as well as other public schools offering adolescent, middle childhood, or early childhood programs. A statewide task force has been appointed to work with this project.

The State Department of Education has conducted surveys on the use of computers in the schools and provides printed information on computers to local educational agencies. The West Virginia Department of Education has held statewide conferences on educational technology, as well as regional and local district workshops for teachers. These activities are continuing and others will be considered.

WISCONSIN

Wisconsin's Department of Public Instruction has established a Committee on Computers in Education, which is comprised of representatives from all Department divisions and has the purpose of studying agency policy on computers.

The Committee surveyed departmental activity involving computers, including:

- meeting the SEA's own administrative needs,
- providing services to local school districts,
- The SEA's use of computers for instruction,
- SEA provision of technical assistance to LEAs on the use of computers for management and administrative purposes and in instruction, and
- department improvement of internal data processing capacity to serve all programs and users.

Subcommittees of this group will contribute to recommendations for the development of a management plan for using computers to better perform functions within the SEA and for the technical assistance the SEA will provide to local districts on the use of computers for both administrative and instructional purposes.

The Wisconsin Department of Public Instruction is a member of Project BEST. Also, in cooperation with CEMREL and the Wisconsin Center for Education Research, the agency published *Computers and the Classroom — A Resource Guide*, in October 1982.

WYOMING

The Wyoming state education agency has trained its staff to provide leadership and technical assistance to local school districts in matters pertaining to instructional technology and information services. Such assistance has included workshops for teachers throughout the state on computer literacy.

Wyoming is a member of Project BEST and is also using Computronics, a project of teacher inservice and training activities for teachers of grades K-12.

APPENDIX

Letter sent to the Chief State School Officers

December 13, 1982

Dear

The Southeastern Regional Council for Educational Improvement is interested in obtaining information pertaining to recent legislation and/or State Board of Education action in technology in all states. Would you please forward this communication to the appropriate person in your agency who could assist us in this endeavor.

The Southeastern Regional Council would like copies of the educational technology legislation and/or State Board of Education policies enacted. We would appreciate knowing your state agency's perception of the effectiveness of these enactments and the barriers that might impede implementation.

Also, any additional information you could provide regarding the particular direction in technology your agency is pursuing would be appreciated.

Thank you for your assistance.

Sincerely yours,

Bernice H. Willis
Deputy Director